ANIMAL KEEPERS' FORUM

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The Journal of the American Association of Zoo Keepers, Inc.

ANIMAL KEEPERS' FORUM, 3601 S.W. 29th St., Suite 133, Topeka, KS 66614-2054
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36th Anniversary - 1974 - 2010

MISSION STATEMENT
(Revised April 2009)
American Association of Zoo Keepers, Inc.

The mission of the American Association of Zoo Keepers, Inc. is to advance excellence in the animal keeping profession, foster effective communcation beneficial to animal care, support deserving conservation projects, and promote the preservation of our natural resources and animal life.

This month's cover features a drawing of a Bactrian Camel (Camelus bactrianus) by Elena V. Chelysheva, PhD, from Moscow, Russia. Elena is currently involved in two independent research projects on cheetah (Acinonyx jubatus). Bactrian camels have two humps rather than the single hump of their Arabian relatives. The humps function the same way—storing fat that can be converted to water and energy when food is not available. These humps give camels their legendary ability to endure long periods of travel without water, even in harsh desert conditions. As their fat is depleted, the humps become floppy and flabby. Bactrian camels live not in shifting Sahara sands but in Central and East Asia's rocky deserts. Temperatures in these locales can become searingly hot—over 100°F (38°C) in summer. Yet they can also drop to –20°F (-29°C) in winter. Bactrian camels have developed special adaptations to allow them to survive in such a brutal environment including a thick, shaggy coat that protects them in winter and falls away as seasons change and temperatures rise. Like Arabian camels, Bactrians rarely sweat, helping them conserve fluids for long periods of time. In winter, plants may yield enough moisture to sustain a camel without water for several weeks.When camels do refill, however, they soak up water like a sponge. A very thirsty animal can drink 30 gallons (135 liters) of water in only 13 minutes. Like Arabian camels, Bactrians' nostrils close to keep sand out, and their bushy eyebrows and two rows of long eyelashes protect their eyes. Big, flat footpads help them navigate the rough rocky terrain and shifting desert sands without sinking under their own massive bulk or the weight of heavy packs. After a gestation of 12-14 months, females give birth to one (rarely two) young. Calves are weaned at 1-2 years. The birthing season peaks in March-April. Bactrian Camels can live to 40 years. The only truly wild camels that still exist are Bactrian camels. These herds survive in the Gobi Desert of Mongolia and China but number less than 1,000. Thanks, Elena!

Articles sent to *Animal Keepers' Forum* will be reviewed by the editorial staff for publication. Articles of a research or technical nature will be submitted to one or more of the zoo professionals who serve as referees for *AKF*. No commitment is made to the author, but an effort will be made to publish articles as soon as possible. Lengthy articles may be separated into monthly installments at the discretion of the editor. The editor reserves the right to edit material without consultation unless approval is requested in writing by the author. Materials submitted will not be returned unless accompanied by a stamped, self-addressed, appropriately-sized envelope. Telephone, fax or email contributions of late-breaking news or last-minute insertions are accepted as space allows. Phone 785-273-9149; FAX (785) 273-1980; email is akfeditor@zk.kscoxmail.com< If you have questions about submission guidelines, please contact the Editor.

Deadline for each regular issue is the 10th of the preceding month.
Dedicated issues may have separate deadline dates and will be noted by the editor.

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BFR Website: http://aazkbfr.org

Scoops & Scuttlebutt

AAZK Awards Committee Seeking Members

The Awards Committee is accepting nominations for an opening on the committee. Committee members are responsible for reviewing award nominations and selecting award recipients for the eight awards that can be given at the National Conference. If you are interested, please send your reasons why you would like to serve on the committee to: Janet McCoy, Awards Chair, at janet.mccoy@aazk.org.

Donation to Lutz Ruhe Educational Turst

The AAZK Board of Director would like to thank Gary K. Clarke, Director Emeritus of the Topeka Zoological Park, for his generous donation to the Lutz Ruhe Education Turst. This Trust was endowed by Mr. Ruhe to recognize and support professionalism within the zookeeping community and provide travel assistance to attend national conferences. The Lutz Ruhe Meritorious Achievement - AAZK Professional of the Year Award is given as warranted to a zoo keeper who demonstrates their professionalism and commitment to their career in the zoological field. Mr. Ruhe died at his home in Sanibel, FL in December 2009 and the family designated memorial contributions be made to the Trust he established.

Tiger Survey Participation Request

Hello AAZK Members. I am a graduate student in the Longwood Graduate Program in Public Horticulture at the University of Delaware. Due to a very fulfilling work experience at Riverbanks Zoo and Garden in South Carolina, I decided to focus my thesis research on the role that horticulture plays at zoos. Through an online administered survey and case studies, I hope to determine how zoos are effectively promoting their horticulture to their visitors.

With the help of my thesis committee, I have decided to invite all levels of zoo professionals (eg. directors, keepers, horticulturists) to participate in my survey. Your participation is essential to this research. My main goal with this thesis is to have it relevant and useful to all zoo employees-with your assistance I think I can make this possible!

The final version of the survey is near completion, but a link could not be finalized by the newsletter's publication deadline. However if you are willing to participate in this 15 minute survey please send an email to me at katebalt@udel.edu and I will be more than happy to notify you when the link to the online survey is finalized. Also, if you are able to disperse the survey link to other employees at your zoo I would greatly appreciate the help. Please feel free to email me if you have any questions, katebalt@udel.edu<

Thanks for your support and cooperation,
Kate Baltzell

National Zoo Keeper Week is quickly approaching. Have you made plans for your Chapter and/or zoo to commemorate the event? If you need help, check out the AAZK website [www.aazk.org] under About Us/National Zoo Keeper Week. There you will find downloadable logos, a copy of the proclamation, a sample press release along with ideas and suggested activities for the event.

NATIONAL ZOO KEEPER WEEK

July 18 - 24, 2010

Celebrate the Profession!

From the President . . . .

Shane Good, AAZK President
Cleveland Metroparks Zoo

Unfortunately, it is a relatively rare occurrence that we hear from the membership outside of conference week. We all have busy schedules, but sometimes the silence reminds me of the Springsteen song "Radio Nowhere" when the Boss cries "Is there any life out there?" So when the occasion arises that I do hear questions, comments, or concerns from our members, I feel it is important to share it. Recently, I have received inquiries on AAZK's position with non-accredited institutions.

There is a negative stigma in our industry associated with facilities that are not accredited by the Association of Zoos and Aquariums (AZA). The image that first comes to mind of a non-accredited facility is a dusty roadside zoo operated by Billy Bob and his band of misfits, overseeing malnourished animals under appalling conditions. That image is unfair, and often far from the truth. There are many reasons a facility may not be accredited. They may not be able to afford the associated membership fee, do not see the value in the fee, perhaps disagree with some element of the parent organization, or maybe they are so specialized in one particular area they have no need for membership. Some of the non-accredited facilities that exist are fine organizations that for one reason or another, choose not to pursue accreditation. That said, there are numerous non-accredited institutions in need of improvement that are not eligible for accreditation based on their business practices, facilities, or animal welfare.

I am asked on a regular basis why AAZK allows non-accredited facilities to become Institutional Members of AAZK. First, let me state that an Institutional Membership with AAZK is not necessarily an endorsement of a facility. Each application is reviewed by the Executive Director and Board of Directors, and multiple factors are used to determine if the facility is eligible for an Institutional Membership. However, accreditation of facilities is not part of AAZK's mission. What is part of our mission is the sharing of information, and establishment of best practice and standardization of animal husbandry for the benefit of the entire animal care profession. So let's assume for a minute that non-accredited zoos are substandard, which I believe is often not the case. Would there be any organizations more in need of AAZK's educational services and products, conferences, and subject-matter expertise in animal care? Therefore it has been AAZK's stance to draw the line in the sand of where best practice in animal care exists, but to also do our best to promote best practice in all facilities, both accredited and non-accredited.

Similar to non-accredited institutions, circuses share a negative stigma. I was reminded of this fact when a famous circus posted job openings on the AAZK website. I quickly received complaints from both AAZK members and non-members. In particular, they cited the elephant management practices of the circus. My personal impression, based on years in the industry and numerous conversations with colleagues possessing expertise in elephant management, was that the charges were unfounded. However, I chose to do some fact-checking with more of those experts in elephant management who confirmed my initial belief. As one elephant manager explained to me, "Today, no organization is doing more positive things for elephant management and conservation than (famous circus)." But what if that were not the case? Would banning the circus from AAZK be the proper solution? Would it not be preferable to expose the circus' employees to AAZK's educational services and products? Is it not evident that the facilities which place advertisements of job vacancies on aazk.org recognize the value of AAZK and the quality of our membership? If indeed AAZK members represent the best and the brightest of our profession, than doesn't that say something positive about the organization trying to recruit them?

I strongly encourage all organizations, zoos, aquariums and circuses, accredited or not, to pursue an Institutional Membership with AAZK. All applications are subject to final approval by the AAZK Board of Directors and Executive Director. Our annual fee of $150 is a bargain, especially considering what a membership fee costs for other organizations in the industry. AAZK is *Dedicated to Professional Animal Care*, and together our committees, individual members, and institutional members can make the positive changes that benefit our industry, our institutions, animal care professionals, and most importantly, the animals under our care.

AMERICAN ASSOCIATION of ZOO KEEPERS

Shane Good

Coming Events

Post Your Coming Events Here
email to: akfeditor@zk.kscoxmail.com

July 3-7, 2010 - ***24th International Congress for Conservation Biology.*** Symposium on Grizzly Bear Research and Management. To be held in Edmonton, Alberta, Canada. See http://www.conbio.org/2010 for more information.

August 22-26, 2010 - ***AAZK National Conference.*** Hosted by the Philadelphia AAZK Chapter and the Philadelphia Zoo. Conference information, program schedule, online registration and hotel info available at www.philadelphiaaazk.org. A reminder that a $50 late fee is applied to registrations after 22 June 2010.

August 30 - September 3, 2010 - ***7th International Penguin Conference*** - in Boston, MA. Hosted by The New England Aquarium. For info email ipcboston@neaq.org

September 1 - 5, 2010 - ***IUCN XIth International Otter Colloquium.*** Held in Pavia, Italy. For further info: http://www.internationalottercolloquium2010.eu/

September 11-16, 2010 - ***AZA 2010 Annual Conference.*** Hosted by the Houston Zoo, Houston, TX. See http://aza.org/ConfWork/AC_Intro/index.html for further information.

September 7-12, 2010 - ***National AZAD Conference*** Hosted by Brookfield Zoo, Brookfield, IL USA. Call for Papers--Share your ideas by presenting a paper addressing ways people can work to conserve our Earth and all the gifts it gives us. For further information see http://www.azadocents.org/

September 27-30, 2010 - ***AZA Orangutan SSP® Workshop*** - To be held at the Denver Zoo, Denver, CO. Theme: "Conservation & Husbandry Innovations for the New Decade" Climb Up to a Higher Branch at the 4th Annual Orangutan SSP® Husbandry Workshop! - Focused on the care and management of orangutans, the workshop will bring together orangutan caregivers and managers, researchers, and field biologists to share the most current information on husbandry, conservation, and emergent issues pertaining to captive and wild populations of orangutans. Workshop registration fee is $125. The workshop will be held in conjunction with the Orangutan SSP® Masterplan meetings which will take place on Sunday, September 26, 2010. For additional information contact Ronda Schwetz at rschwetz@denverzoo.org. Online registration will be available soon at www.denverzoo.org. Pre-Conference Trip to Cheyenne Mountain Zoo Sunday, September 26—more details soon!

September 28-October 2, 2010 - ***20th International Zoo Educators' (IZE) Biennial Conference*** - at Disney's Animal Kingdom, Orlando, FL. For more information, please visit http://www.izea.net

October 14-15, 2010 - ***Passerine Workshop***
Hosted by Zoo Atlanta, Atlanta, GA. The intent of this workshop is to increase knowledge for keepers/newer managers on basic husbandry, breeding, and daily management of various passerine species and sharing of information between institutions.

Please contact Sprina Liu, sliu@zooatlanta.org, for more information.

October 17-21, 2010 - ***65th Annual Conference of WAZA.*** To beheld in Cologne, Germany. See http://www.waza.org/en/site/home for further information.

March 2-4, 2011 - ***Association of Professional Wildlife Educators.*** To beheld at the Frank Buck Zoo Gainesville, Texas. Watch http://www.apwe.org/ for details as they become available.

May 15th-18th, 2011 - ***2011 Rhino Keeper Workshop.*** To be held at Fossil Rim Wildlife Center, Glen Rose, texas. For further info contact: adam.felts@columbuszoo.org

Upcoming AAZK National Conferences

2010 - Philadelphia, PA - August 22-26
www.philadelphiaaazk.org

2011 - San Diego, CA - August 24-28

2012 - Syracuse, NY - September 23-27
For information on upcoming AAZK conferences, watch the AAZK website at
www.aazk.org

Conference 2010
Philadelphia, PA
August 22-26, 2010

The Greater Philadelphia Chapter of AAZK is proud to be hosting the 2010 National Conference to be held August 22-26, 2010! Please visit our website www.philadelphiaaazk.org and click on "2010 National Conference" to register for this year's conference. Don't forget - after June 22, 2010, there will be a $50 late fee applied to all full-week registrations.

Conference delegates will be staying at the beautiful Westin in Philadelphia. The conference room rate is $189 per night. The hotel has a limited number of double rooms available; if you need two double beds in your room, please book early and let the hotel know you'd like a double room. All other rooms have a single king-sized bed. More information about the hotel is available on our website.

This year's conference will kick off with our Icebreaker to be held at The College of Physicians' Mutter Museum. Attendees will have the chance to explore the museum of medical oddities, observe the many skulls, preserved specimens, and wax models while enjoying food and drinks. Check out the venue at www.collphyphil.org.

We are excited to announce that our keynote speaker will be Dr. Jonathan Reyman from the Feather Distribution Project. Since its creation in 1982, the project has distributed more than 8,500,000 parrot and turkey feathers free of charge to all of the Pueblos in the southwest. The Philadelphia Zoo has been a project participant for several years. This project is an easy, free way for zoos and visitors to get involved in parrot conservation. For more information on the project, please visit www.wingwise.com.

Be sure to join us for our pre-conference trip to the Bronx Zoo in New York City, and our post-conference trip to the Cape May County Zoo and a whale and dolphin watching tour! For our trip to the Bronx, we will leave from the hotel at 7:00 a.m. on August 22nd and will return in time for the Icebreaker. Price is $40 and includes transportation and admission to the zoo. For the Cape May trip we will leave from the hotel at 7:00 a.m. on August 27th, spend a few hours at the zoo, eat lunch in the park, then go on a three-hour whale and dolphin boat tour. The bus will arrive back to the hotel at approximately 7:00 p.m. Price is $40 and includes transportation, admission to the zoo, lunch, and a ticket for the whale and dolphin watching trip.

Please see our website for any other questions or information you might need! We are looking forward to seeing you all in August!!

www.philadelphiaaazk.org

AAZK Announces New Members

New Professional Members

Lisa Hartman, **Lionshare Education Organization (CT)**; Brandi Baitchman, **Zoo New England (MA)**; Sarah Guaracini, **Jenkinson's Aquarium (NJ)**; Courtney Macklin, **Buffalo Zoo (NY)**; Veronica Smith, **Wildlife Conservation Society (NY)**; Stacey Tabellario and Tallie Walker, **Smithsonian's National Zoological Park (DC)**; Sarah Shannon, **National Aviary (PA)**; Claire MacNamara, Laura Koniorx, Carly Barron and Lacey Byrnes, **The Maryland Zoo in Baltimore (MD)**; Liz Evans, **National Aquarium in Baltimore (MD)**; Brittany Nelson, **Natural Bridge Zoo (VA)**; Dana High, **North Carolina Zoo (NC)**; Rebecca Kreh, **Zoo Atlanta (GA)**; Katherine Byrnes, **Hattiesburg Zoo (MS)**; Kimberly Thompson, **Miami Metrozoo (FL)**; Jessica Devonport and Jodi Brandon, **Lion Country Safari (FL)**; Jonathan Hankins and Tara Lee, **Disney's Animal Kingdom (FL)**; Sasha Tetzlaff, Mark Mullen and Kristin Szwajkowski, **Naples Zoo (FL)**; Tiffany Laracuente, **Louisville Zoo (KY)**; Lisa Gehlhausen, **Ft. Wayne Children's Zoo (IN)**; Joseph M. Carroscia, **Cleveland Metroparks Zoo (OH)**; Kelly Cook, Charlie Ramsey, Sarah Morrow and Diana Tutro, **Detroit Zoo (MI)**; Tina Vega, **Brookfield Zoo (IL)**; Genna Kain, **Phillips Park Zoo (IL)**; Sara Rekart and Mylisa Whipple, **St.. Louis Zoo (MO)**; Jamie Schmitt and Katie A.Schalk, **Dickerson Park Zoo (MO)**; Erin Black, **Kansas City Zoo (MO)**; Jenna Kocourek and Kristen Otterson, **Omaha's Henry Doorly Zoo (NE)**; Wrylie Guffey, **Topeka Zoo (KS)**; Carrie Trudeau, **Turpentine Creek Wildlife Refuge (AR)**; Lindsay Eades, Kathryn Sawyer, Christina Johnson and Melinda Ruhnke, **Lake Superior Zoo (MN)**; Deirdre Murphy, **Audubon Aquarium of the Americas (LA)**; Jamie Orth, **Audubon Nature Institute (LA)**; Mathew Oldenburg, **Zoo of Acadiana (LA)**; Robyn Evans, Candice Davis and Doug Snyder, **Dallas Zoo (TX)**; Russell Raab, **Ellen Trout Zoo (TX)**; Ben LaBelle, **Moody Gardens (TX)**; Cassandra Hernandez, **Texas State Aquarium (TX)**; Amanda Faliano, Erin Schaefer and Laura Morrell, **Denver Zoo (CO)**; Melissa Eschenbrenner, **Zoo Boise (ID)**; Emily Lutz and Connie Stanger, **Tautphaus Park Zoo (ID)**; Maureen O. Duryee, Nathaniel Schierman, Mike Crue and Alexis Schierman, **San Diego Zoo (CA)**; Melodi Tayles, **San Diego Zoo's Wild Animal Park (CA)**; Elizabeth Wilson, **Santa Barbara Zoo (CA)**; Kate Gore, **Sacramento Zoo (CA)**; Diane Koskie, **Los Angeles Zoo (CA)**; Gregory M. Ortis, **Santa Ana Zoo (CA)**; Jeennifer Ziegelmeyer, **Happy Hollow Zoo (CA)**; Kaitlyn Keys, **The Living Desert (CA)**; Amy Hash and Matthew Crouse, **Oregon Zoo (OR)**; Beth Foglesong, **The Alaska Zoo (AK)**; Peter Bibeault, **Keauhou Bird Conservation Center (HI)**; Libby Eyre, **Sydney Aquarium (Australia)**. *We do not publish the names of new and/or renewing members who do not list their facility on their membership application/renewal There were 14 in April and May.*

New Institutional Members

Gulf Breeze Zoo, Gulf Breeze, FL
Danyelle Lant, Director

Bearizona Wildlife Park, Williams, AZ
Vanessa Stoffel, Chief Operating Officer

Binghamtom Zoo at Ross Park
Binghamton, NY
Sheila Green, Executive Director

North Carolina Museum of Life & Science
Durham, NC
Sherry Samuels, Director

McCarthy's Wildlife Sanctuary, Inc.
West Palm Beach, FL
Mark McCarthy, Director

In-Sync Exotics, Wylie, TX
Vicky Keahey, President

New Contributing Members
Donna M. Graham
Club K-9 Doggy Daycare, Dayton, OH

Renewing Contributing Members
Bonnie Jacobs, Lead Keeper
Lincoln Park Zoo, Chicago, IL

Hiroko Yoshida, Ph.D.
Kawasaki University of Medical Welfare, Japan

Thomas C. Roy, Southfield, MI

Ron Manseau, Detroit, MI

James R. Williams, Esq., Pound Ridge, NY

Kevin R. Shelton, Tampa, FL

John Jinks, Locust Grove, OK

Laurie McGivern, Houston, TX

Renewing Institutional Members
Utica Zoo, Utica, NY
Elizabeth G. Irons, Executive Director

Animal Junction, Inc., Warminster, PA
Joseph Fortunato, President

Tregembo Animal Park, Wilmington, NC
Sherry Tregembo, Owner/Operator

Lion Country Safari Inc., Loxahatchee, FL
Terry Wolf, Wildlife Director

Indianapolis Zoo, Indianapolis, IN
Mike Crowther, President

Exotic Feline Rescue Center, Center Point, IN
Joe Taft, Founder/Director

The Tracy Aviary, Salt Lake City, UT
Roger Sweeney, Curator

Moonridge Animal Park, Big Bear Lake, CA
Debbie Richardson, Curator

Cougar Mountain Zoo, Issaquah, WA
Robyn Barfoot, General Curator

Jacksonville Zoo & Gardens, Jacksonvile, FL
Delfi Messinger, Director of Animal Programs

Detroit Zoological Society, Royal Oak, MI
Ron Kagan, Director

Henry Vilas Zoo, Madison, WI
Jim Hubing, Zoo Director

Chicago Zoological Society, Brookfield, IL
Dr. Stuart D. Strahl, President & CEO

St. Louis Zoo, St. Louis, MO
Jeffrey P. Bonner, President

Kansas City Zoo, Kansas City, MO
Randy Wistoff, Director

Omaha's Henry Doorly Zoo, Omaha, NE
Dr. Lee Simmons, Director

Denver Zoo, Denver, CO
Craig D. Piper, President/CEO

Wildlife World Zoo, Litchfield, AZ
Mickey Ollson, Director

International Exotic Feline Sanctuary, Boyd, TX
Richard Gilbreth, Director

California Science Center, Los Angeles, CA
Jeffrey N. Rudolph, President and CEO

Wild Things, Salinas, CA
Charlie Sammut, Owner

Sacramento Zoo, Sacramento, CA
Mary Healy, Director

Point Defiance Zoo & Aquarium, Tacoma, WA
Gary Geddes, Director

Calgary Zoo Library
Calgary, Alberta, Canada
Alex Graham, President/CEO

Greater Vancouver Zoo
Aldergrove, British Columbia, Canada
Jamie Dorgan, General Manager

Renewing Commercial Members
Mazuri Diets/Purina Mills, St. Louis, MO
Dr. Mark Griffin

Nebraska Brand, North Platte, NE
Lloyd Woodward, General Manager

The Gourmet Rodent, Jonesville, FL
William E. and Marcia Brant, Owners

Pet-Ag, Inc., Hampshire, IL
Debra Hoffman

"Trees for You and Me" AAZK Chapter Challenge

By Christy Mazrimas-Ott, Senior Keeper
Brookfield Zoo/Chicago Zoological Society
Brookfield, IL

First of all, I wanted to thank all the AAZK Chapters that participated in the first "Trees for You and Me" AAZK Chapter Challenge that ran 1 October 2009-1 March 2010. Over $10,000 was raised, including the donations that were received after 1 March 2010, adding the American Association of Zoo Keepers to the list of corporate sponsors on The Arbor Day Foundation website. Here is the break down of donations by the AAZK Chapters:

	as of 23 April 2010:	**as of 1 March 2010**
Brookfield	3,210.00	3,135.00
Wildlife World Zoo	2,000.00	2000.00
Tucson	725.00	625.00
San Antonio	549.00	549.00
Omaha Henry Doorly Zoo	525.00	0
Ozarks	500.00	500.00
Seneca Park	500.00	500.00
Pittsburgh (youth volunteers)	477.00	477.00
Milwaukee	405.00	405.00
Rocky Mountain	326.00	310.00
Detroit	240.00	240.00
Indianapolis	200.00	200.00
Minnesota	150.00	150.00
Lion Country Safari	120.00	120.00
Scovill Zoo	100.00	0
Greater Baltimore	100.00	100.00
Greater Houston	92.00	92.00
National Chapter	50.00	50.00
St. Louis	50.00	50.00
Lincoln Park	50.00	50.00
Greater Cleveland	50.00	50.00
Cheyenne	25.00	25.00
New England	25.00	25.00
Phoenix	25.00	25.00
Jacksonville	25.00	0
San Francisco Bay	10.00	10.00
	$10,529.00	$9139.00

The Brookfield AAZK Chapter won the competition with a total of $3135.00 donated to plant trees, reduce CO_2, and save polar bears by midnight of 1 March 2010. The donations went directly to The Arbor Day Foundation where trees are planted in over 70 forests, but the trees donated by AAZK Chapters will mainly go into three separate forests: Boys Colony State Forest in Alabama, Okaloacoochee State Forest in Florida, and Mackinaw State Forest in Michigan. Here are links to the reforestation project in Michigan - http://www.arborday.org/replanting/stories.cfm?forest=46 and in Florida - http://www.arborday.org/replanting/stories.cfm?forest=49 .The Boys Colony Forest planting was completed in mid-January which was an ideal month temperature-wise for planting more than 100 acres and 71,530 Loblolly pine trees. The trees were planted on this tract to prevent erosion of soils into Lake Tuscaloosa and the surrounding watershed. Lake Tuscaloosa is the

primary water source for the City of Tuscaloosa. If the land was not reforested, the drainage and erosion problems would be significant within a very short period of time. Thanks to The Arbor Day Foundation partners and the Alabama Forestry Commission, this area is on its way to becoming green space again and the surrounding wildlife and watershed will benefit for years to come.

The Brookfield AAZK Chapter planted a Redbud that was donated by The Arbor Day Foundation for winning the AAZK Chapter challenge on Arbor Day with the help of Brookfield Zoo's Grounds department. The tree was planted across from one of the new bear exhibits at "Great Bear Wilderness".

Keepers from the Brookfield Zoo plant a tree on the zoo grounds as part of the "Trees for You and Me Program". The Brookfield AAZK Chapter raised the most money during the program's initial event.

I would like to thank the following for all their support with the "Trees for You and Me" AAZK Chapter Challenge and helping make it be such a great success for a first time project: The Arbor Day Foundation, especially Kevin Sander and Kathy Wheeler; the AAZK Board of Directors, especially AAZK President Shane Good; Polar Bears International; and last but not least all the AAZK Chapters that participated and the folks who donated $1/tree.

There will be another "Trees for You and Me/Polar Bear Forest" AAZK Chapter challenge this year thanks to the AAZK Board of Directors' approval, and all the support that was given by the AAZK Chapters. The details are still being worked out, but will be announced during the AAZK National Conference in August. The challenge will run 1 September 2010 - 1 March 2011.

MOVING?

If you are changing your mailing address, please let us know ASAP. Be aware that since *Animal Keepers' Forum* is sent under a nonprofit, bulk rate postal permit, it is NOT automatically forwarded to your new address. So, if you don't want to miss any issues of *AKF*, inform us as soon as you have a new mailing address. Call the Administrative Office at 785-273-9149 or you can email change of address/email information to:

aazkoffice@zk.kscoxmail.com
Please put "Address/Email Change" in the subject line.

People Skills For Animal People

KEEPERS AND COMMUNICATION, Part IV

By Judie Steenberg (12/09)
Retired Zoo Keeper
Maplewood, Minnesota

The Written Word

Isn't there something you should be writing about? Either recording in complete form for future reference or to be communicated to others so they too may share in your ideas and benefit from your experiences? You may want to write to inquire, to inform or to persuade. These are three basic forms of written communication that easily apply to Keepers.

Writing is really not all that difficult, especially in this day and age, with computers and spell checking. With a few basic guidelines, you too can be using this medium to express yourself. To be effective, written communications require organization and planning. You must have an explicit meaning to begin with, a justification or reason for your communication. With that as your starting point, develop your message. Think about your readers and how they will react to what you are saying. Talk their language. Use clear and simple English and keep in mind the basic principles of writing: unit, coherence and emphasis.

Who is your reader? Why are you writing? To inquire, inform, persuade or perhaps entertain? Think before you write. Select a topic, list its possibilities and select the most interesting. Organize around a single subject and in a logical manner. Write in a way that you would enjoy reading.

For unity, be careful of sentence fragmentation, loose hook-ups, word omission and comma splices of main ideas. Coherence is the tying together of main ideas and topics. Link works, phrases and sentences so their intended meaning is clear. Emphasis gives power to the statement of key ideas. Also, strive for accuracy. Check facts, spelling and statistics, verify the validity of your references (especially information from the Internet) and look at the overall appearance of your copy. Be yourself throughout your writing.

An important part of writing is rewriting. There are very few people who can sit down and write an article, report or technical paper without editing and rewriting it, often several times. The more important your message, the more care you should take to get it across in the best way. Some of the great dangers of writing are wordiness (empty words and expletives), meaningless repetition and clumsy overloading.

It helps to develop research skills and you will need to spend some time developing your ability to write. Remember to read your work several times. Did you enjoy it? Why or why not? These are important questions to ask of yourself. The written word is a permanent, long-term method of communication. It is a most valuable way to convey your ideas and share your knowledge.

Computers and cell phones - a bane and a boon....on the job

Computers in the zoo have been described as "More dangerous than a loose gorilla". Another comment heard from a supervisor was that Keepers spend more time at the computer than caring for and, especially, observing the animals. Yet still another reported that she received emails from co-workers just down the hall.....within earshot; she receives many, many questionable emails a day from zoo staff.

Without a doubt computers have been a great help in record keeping and preparing daily reports. Yet, Keepers have expressed concern that they are required to spend too much time at computers due to receiving too many emails. Information overload can become a serious problem in zoos with every department sending everything to everybody!

Perhaps the most difficult problem with computers and getting information from the Internet is that there is no control over the accuracy, or validity, of the information that's out there. You really do need to know the source, and if it's reliable. Once incorrect data is out there on the information highway it's hardly ever corrected. When someone says...."I found it on the Internet"....it immediately becomes suspicious and can be a matter of opinion rather than fact.

While computers have unquestionably been a major means of facilitating record keeping, maintaining animal inventories, documenting behavior and health information and have helped share information during the shipment of animals....to name a few uses....they are easily misused. Personal use such as surfing the Internet and game playing are the two most reported abuses of computers during the work day.

Some zoos have policies that are enforced regarding the use of computers and cell phones for personal use during working hours. These range from complete restrictions on computer use – no personal use at any time, including off the clock; the rationale is that the computers are owned by the zoo and it ties up the broadband. One zoo reported that the staff accepts a user agreement when they become employed but are allowed the use of personal phones and use of the computers with restricted sites such as Facebook®, chat rooms, etc. Personal computer use is allowed on breaks. At some zoos hourly staff carries zoo-issued cell phones for emergency purposes only. Another zoo reported that incidental and infrequent personal use of cell phones is permissible but it is preferable that they be kept in the mute or off position while on duty. One zoo reported using personal cell phones instead of having lengthy conversations over the radio. Several zoos reported cell phones were not to be used while operating vehicles or hazardous equipment.

It seems unfortunate that there even need to be policies, and in some cases they are in place but not "policed"; cases of misuse are dealt with on a case-by-case basis. Ask yourself, as a Keeper, do you really have time to be spending on the computer for personal use, or on cell phones instead of observing, researching or otherwise caring for your animals? Common sense should prevail. Also, remember, new technology allows you to "connect" with others but you are not always "communicating". In fact, be careful, misinterpretations occur quite easily.

In this series I have attempted to identify and comment on:

- What communication is
- Why it needs careful attention
- When and where Keepers are involved with communication
- How to accomplish it

This series was intended to help you develop communication skills on the job, but is not the end all answer to communication. As stated in the beginning of this series, basic personal communication skills are timeless. It takes effort to develop good communication skills but it's really worth it. Volumes have been written on the subject of communication. It is a complex and vital part of all we do, especially to communicate the needs of the animals in our care.....and, it begins with YOU.

At the recent ICZ/AAZK Conference in Seattle, WA, Rosalie Rust, St. Louis Zoo, presented a paper on Keeper Communication Skills that included topics such as informal visitor communication, tours and professional presentations in addition to Keeper to Keeper communication. Rosalie's paper will appear in next month's People Skills for Animal People. In August, this column will begin some discussion on Conflict Resolution in the workplace.

Female Reproductive Parameters and Calf Development in Captive Klipspringers *(Oreotragus oreotragus)*

By
Roger Reason, Senior Keeper
Brookfield Zoo, Brookfield, IL

The first klipspringer (*Oreotragus oreotragus*) to make an appearance in an American zoo was a female imported by the Philadelphia Zoo in 1934. However, it was not until the 1970's that klipspringers began to reproduce in captivity, with the first birth occurring at the St. Louis Zoo in 1971 (Maley, 1999). Since that time 182 births have been recorded in the North American Studbook (Lebanik, 2008) but, despite this relatively good breeding success, basic information on female reproductive parameters and calf development has not been well documented within the zoo community. The scientific literature also has little to offer on these subjects.

In an attempt to provide insight into some aspects of reproduction and development in this species, information was compiled from klipspringer records at Brookfield Zoo as well as records provided by the Brevard Zoo in Melbourne, FL and the Lincoln Park Zoo in Chicago, IL. This information has been consolidated into Tables 1 and 2.

Female Reproductive Parameters

Gestation Period

Reports from the literature on gestation length in klipspringers are conflicting. Cuneo (1965) mentions gestation lengths of 7-7½ months (213-228 days) and Kenneth and Ritchie (1953) give a gestation period of 214 days. However, Norton (1980) reports a gestation length of five months (152 days) and Estes (1991) states that this is a more likely estimate. Taking into consideration the average gestation length for Brookfield, Brevard, and Lincoln Park Zoos (Table 1), the preponderance of evidence suggests that the normal gestation period for this species is around seven months (213 days). This is similar to gestations of 6.4 and 7 months recorded for the oribi (*Ourebia ourebia*), a related neotragine (dwarf antelope) species. (Estes 1991).

Udder Development

The range for udder development in klipspringer pregnancies at Brookfield Zoo is rather broad (Table 1). However, Estes (1991) reports udder development occurring at one month prior to birth in the oribi indicating that the upper end of this range may be more typical for klipspringers.

Post-Partum Estrus

While there is no information in the literature on post-partum estrus in other members of the dwarf antelope group, the post-partum estrus for klipspringers at Brookfield and Lincoln Park Zoos (Table 1) is similar to that reported for some of the smaller non-neotragine antelope species. Thompson's gazelle (*Gazella thompsonii*) comes into estrus within two weeks of giving birth and the gerenuk (*Litocranius walleri*) within 2-4 weeks (Estes 1991).

Female klipspringer and calf at the Brookfield Zoo.
(Photo: Jim Schultz, Staff Photographer/Brookfield Zoo)

Calf Development

First Ingesting Solid Food

The ages at which klipspringer calves at Brookfield Zoo were observed to start ingesting solid food (Table 2) are generally later than those for the oribi which starts nibbling grass at five days of age and the steenbok (*Raphicerus campertris*), another dwarf antelope species, which starts eating plants at two weeks of age (Estes 1991).

Horns First Visible

Klipspringer calves at Brookfield Zoo showed horn development beginning at an earlier age (Table 2) than the four months (122 days) noted by Norton (1980). This discrepancy may be due to the fact that he was observing wild animals at a distance and the first signs of horn development would be much more difficult to detect than in a captive animal.

Last Nursing Attempt

The ages for the last observed nursing attempts for klipspringer calves at Brookfield Zoo (Table 2) are comparable to the weaning age of 4-5 months (122-152 days) reported by both Cuneo (1965) and Norton (1980). Oribi have also been observed to nurse until this same age range (Estes 1991).

Further studies on klipspringers would undoubtedly be helpful to more completely document the above parameters. However, the information presented here, while preliminary in nature, provides a starting point for any additional work on the reproductive biology of this species.

Table 1. Reproductive parameters in female klipspringers (*Oreotragus oreotragus*).

	# of Animals	# of Pregnancies	Range	Mean
Gestation Period (days)	2	5	201 – 246	214.4
Udder Development (days prior to delivery)	1	5	18 – 32	24.0
Post-Partum Estrus (days after delivery)	2	3	7 – 20	14.0

Table 2. Calf development in klipspringers (*Oreotragus oreotragus*).

	# of Animals	Range	Mean
First Ingesting Solid Food (days after birth)	5	5 – 26	17.8
Horns First Visible (days after birth)	3	75 – 96	85.7
Last Nursing Attempt (days after birth)	2	109 – 141	125

Acknowledgements
Thanks go to Tracy Frampton from the Brevard Zoo and Mark Kamhout from the Lincoln Park Zoo for generously providing klipspringer records from their respective institutions and to Nancy Bent for reviewing the manuscript.

Literature Cited

Cuneo, F. 1965. Observations on the breeding of the klipspringer antelope, *Oreotragus oreotragus*, and the behavior of their young born at the Naples Zoo. Int. Zoo Yb. 5: 45-48.

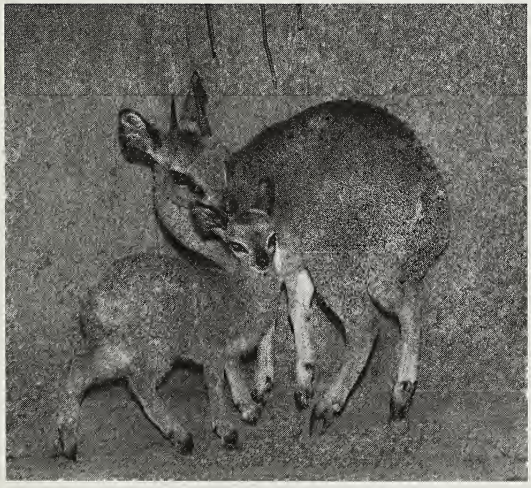
Estes, R.D. 1991. 1991. The behavior guide to African mammals. Univ. of California Press: Berkley, Los Angeles, Oxford.

Kenneth, J.H. and G.R.Ritchie. 1953. Gestation periods and bibliography. Tech. Comm. No. 5 Imp. Bur. Anim. Breed. Commonwealth Agricultural Bureau.

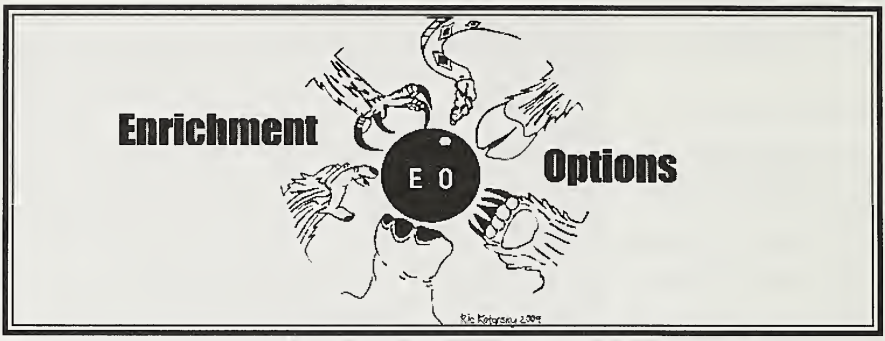
Lebanik, M. 2008. North American studbook for klipspringer (*Oreotragus oreotragus*), 6th edition. Disney's Animal Kindom: Bay Lake, Florida.

Maley, K. 1999. North American studbook for klipspringer (*Oreotragus oreotragus*), 1st edition. Disney's Animal Kingdom: Lake Buena Vista, Florida.

Norton, P.M. 1980. The habitat and feeding ecology of the klipspringer *Oreotragus oreotragus* (Zimmerman, 1783) in two areas of the Cape Province. M. Sc. thesis, University of Pretoria.



0.1 klipspringer Charlotte and calf
(Photo: Jim Schultz, Staff Photographer/Brookfield Zoo)



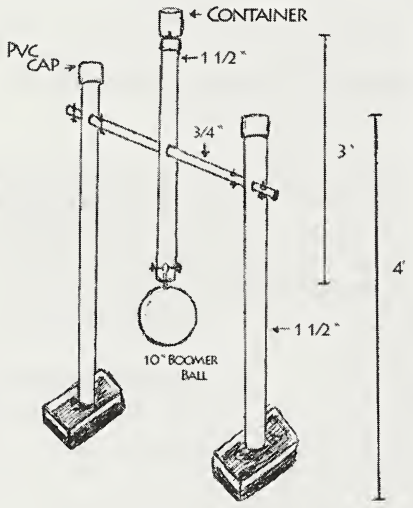
EO Editors -
Julie Hartell-DeNardo, Oakland Zoo and Ric Kotarsky, Tulsa Zoo & Living Museum

Bah Bah Black Sheep!

By Melissa Looney, Keeper
Tulsa Zoo and Living Museum, Tulsa, OK

When it comes to drawing a crowd, enrichment is a visitor magnet. People love to see how smart the animals are and if they can figure out the challenge. Albeit many of the visitors come to the zoo to see the mega vertebrates, watching any animal play with enrichment is entertaining. Therefore, it is unfortunate that many of the extravagant and complex toys are only created for the already charismatic large animals. In this article, we are going to make a sophisticated grain feeder to add a little pizzazz to the Barbados Blackbelly sheep exhibit at the Tulsa Zoo and Living Museum. Even though the sheep do not weigh 300 lbs or have opposable thumbs, watching them work a pendulum feeder is sure to be a crowd pleaser.

The overall concept of this toy is simple. There is a pendulum that swings on a PVC base. There is a Boomer Ball® at the bottom of the pendulum which the sheep already associate with food. (They usually roll it around on the ground to make grain fall out.) At the top of the pendulum, there is a bowl full of food. When the sheep push on the ball in anticipation of grain falling out, the bowl on top of the pendulum tips over and pours out the food!



Pendulum Feeder

Diagram by Marci Tavid, Behavioral Husbandry Curator, Tulsa Zoo

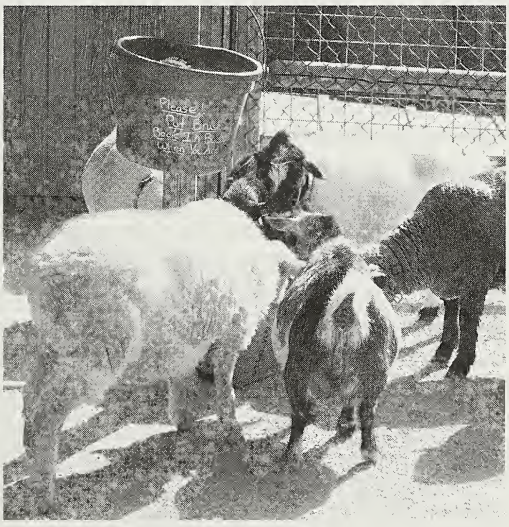
We have tried this toy with two different groups of small hoofstock: one small group of two Barbados Blackbelly sheep (*Ovis aries aries barbados_blackbelly*) and a larger group of 14 Nigerian Dwarf goats (*Capra hircus hircus nigerian*) and Babydoll Southdown sheep (*Ovis aries aries southdown*). The mother Barbados sheep was always the one to push the Boomer Ball® and get the grain to fall out. She and her daughter would both eat the food without any fighting. The daughter would then stand by patiently and wait for mom to score them some more food.

With the larger mixed group of goats and sheep, a few of the sheep took charge. They also knew Boomer Balls® held food, but didn't catch on to push the Boomer Ball®. Instead, they would take turns standing with their heads under the ball. They would then swing their heads straight up and whack the ball. The food would shoot up and out of the bowl and sprinkle the crowd of goats or sheep! It was hysterical! Unfortunately, by the time the one doing the work could get through the crowd, the food was devoured. Luckily, another little guy would take charge and everyone got something to eat. A humorous side effect (at least for me because I didn't have to clean up after the goats and sheep) was that the sheep got this great idea! 'If we whack on this plastic ball and food spews out, what if we whack on all these plastic buckets?' For the next several days, the sheep went around whacking the bottoms of all the hanging brush buckets. Brushes would go flying all over the yard! It was really cute! Eventually, they realized that there wasn't any food to be found and stopped torturing the contact yard staff.

For this project, we will need:

SUPPLIES

(1) ¾" x 10' PVC
(2) 1 ½" x 10' PVC
(3) 1 ½" PVC caps
(1) ¼" x 2 ½" hex bolt
(1) ¼" x ¾" hex bolt
(4) ¼" x 2" hex bolt
(6) ¼" hex nuts
(2) ¼" x 1" flat washers
(1) 5/16" x 4" lag screw eye
(1) 10" Boomer Ball®
(1) 80 lb bag Quikrete®
(2) 12 qt plastic storage containers

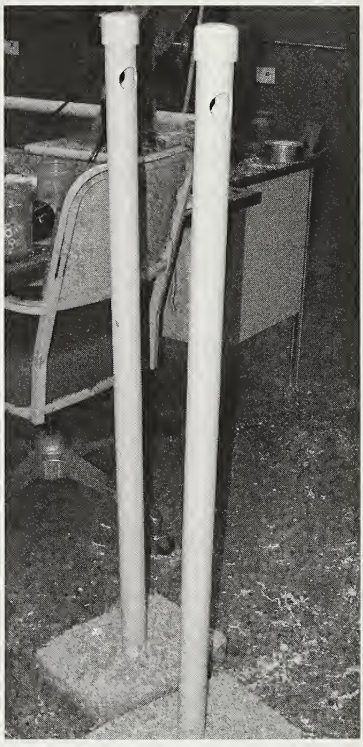


TOOLS

Drill
9/32", 5/16", & ½" drill bits
1 ½" hole saw bit
Miter saw or hand saw
Buckets to mix concrete
Stir stick for concrete
Screwdriver
Pliers
Small piece of scrap wood

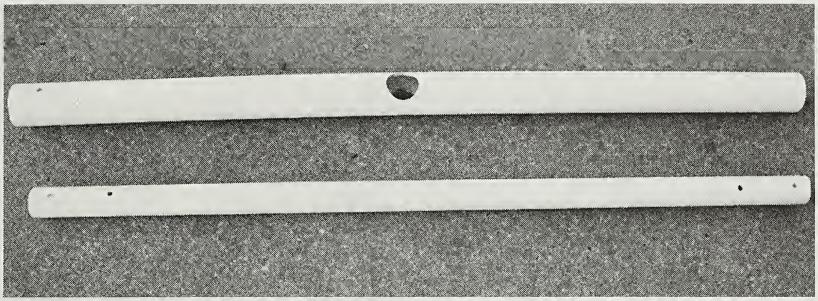
There are five basic parts to the pendulum feeder: the posts, pendulum, pendulum support, food bowl, and Boomer Ball®. The posts will take the longest to make since they involve concrete. The rest of the parts are pretty basic and should not take that long to modify and put together. So let's get started!

Posts. We will need to make two posts to hold the pendulum support pole. For simplicity, I will walk us through making one post, and you will just repeat the process for the second post. Besides a couple small changes, this is the same technique that was used to make the posts for the windmill in the 'Pecs, Cameras, Action!' article [March 2010 *AKF*, pgs. 95-98]. First, cut a 4' piece of 1 ½" PVC. About 3 ½" from either end, drill a 9/32" hole all the way through both sides of the PVC pipe. Try to make the holes level and centered. These two holes are your guide for making the support bar holder. Now we are going to use a 1 ½" hole saw bit to make the holes larger. Typically, a hole saw bit has a drill bit that comes out of its center. Place the bit in one of the holes you just made and cut the new hole. Repeat the process on the other side. Without the original holes you drilled, it would be hard to make sure the large holes are straight across from each other.



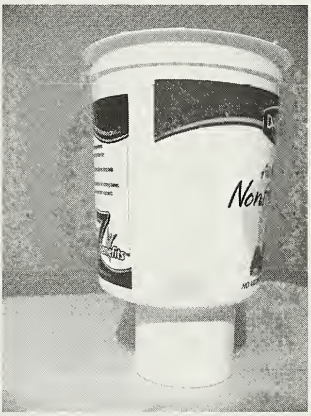
On the other end of the PVC pipe, drill a few ½" holes around the last 2" of that end. Get a 12-quart plastic storage container, about 16"Lx10"Wx6"D. Mix up enough Quikrete® concrete to fill it about ½ of the way full. Just follow the mixing and safety instructions. Put a couple inches of concrete in the container, push the PVC pipe (the end with the ½" holes drilled) down into the center of the container. Make sure the concrete goes inside the bottom of the pipe and through the holes. This keeps the PVC firm in the concrete once it dries. Make sure the large holes drilled at the top of the PVC pipe are oriented towards the long sides of the rectangular storage box. Finish adding the concrete and let it dry. After drying, it is your choice if you remove the plastic storage containers or leave them intact.

Pendulum. Cut a 3' piece of 1 ½" PVC pipe. Drill a 9/32" hole through both sides of the PVC pipe 1 ¾" from the end of the pipe. These holes will be used to attach the Boomer Ball® later. Do not make them larger. Measure 18 ¾" from the opposite end of the PVC pipe. Drill a 9/32" guide hole all the way through both sides of the PVC pipe. Make sure the holes are level and centered. Just like before, use the 1 ½" hole saw bit to make these holes larger. Set this piece aside.



Pendulum support. Cut a 34 ½" piece of ¾" PVC pipe. All we have to do is drill four sets of holes. A "set" consists of a hole that is drilled all the way through both sides of the PVC. We need a set 1" from each end of the PVC pipe (that is two sets) and another set 3 ½" for each end of the PVC pipe (that makes 4). Set this piece aside.

Food container. The food container can be changed depending on the type of food and the level of difficulty you want. I originally was going to use a sandwich storage container, but decided it would be too easy to pour the food out. Instead, I used a 32 oz. yogurt container. The sides were higher and could hold more grain. With all this in mind, I used a knife to cut a couple small holes (about ½"x½") around the base of the yogurt container. I wanted some grain to fall out and reinforce their interactions with the pendulum even if they hadn't figured out to tip it far enough to pour the grain out of the container. The holes can be covered or the container changed once they learn how to use the device.

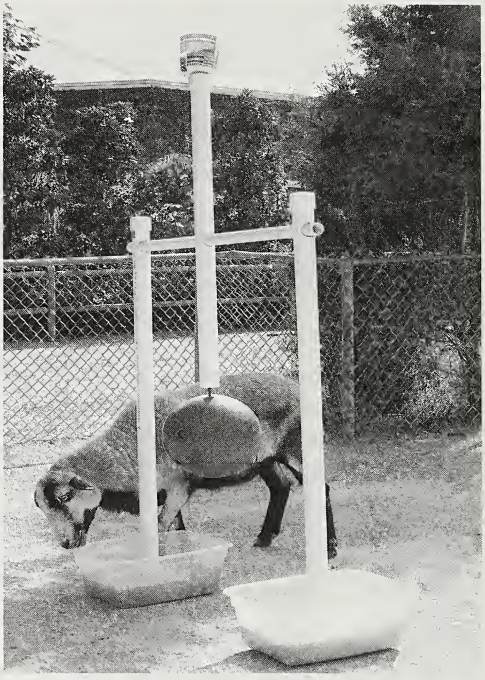


Now we have to attach the bowl to its support. Drill one 9/32" hole through the center of a 1 ½" PVC cap. Drill another hole through the bottom of the food container. To keep the food container from splitting, set the bottom of the container on a piece of wood and drill through the center of the container into the wood. Take the ¼" x ¾" hex bolt and run it through the inside of the PVC cap and out the other side. Add one washer, the food container, another washer, and finally a ¼" nut. The openings of the PVC cap and the container should be facing away from each other. Set this piece aside.

Boomer Ball®. Take a 10" Boomer Ball® and drill a 5/16" hole. Screw the lag screw (basically an eye bolt with a screw end) into the hole. It should be a tight fit. If it is hard to turn with your bare hands, slip the end of a screwdriver through the eye of the screw. Use the handle of the screwdriver to finish twisting the screw into the ball till the treads can no longer be seen.

Dangle the ball in the air by the screw. Strategically place a couple ½" holes (can vary depending on food items) in the Boomer Ball®. They should be high enough so the ball will hold grain, but the grain will fall out if a sheep pushes the ball. The extra holes in the Boomer Ball® are not really necessary, but it is fun to have grain coming from two places. It would probably be fine to use a different toy or target instead of a Boomer Ball®. Just keep in mind that the weight on the bottom part of the pendulum needs to be more than the cup full of grain on the top.

Assembly. Now that we have all the pieces and the concrete is dry, we can start putting it all together. Set the two post with the holes facing each other about 32" apart. Slide the pendulum support rod all the way through one post, the pendulum, and then through the final post. Center the pendulum support so that a set of holes is on each side of each post. Put a 2" bolt through each set of holes and add a ¼" nut to each. These bolts will insure that the support rod can not be slid out of the posts while the animals are playing with it, nor can the posts be slid closer together.



Grab the end of the pendulum that has the small set of holes. Run a 2 ½" bolt through one side of the PVC, the eyebolt of the Boomer Ball®, and out the other side of the PVC. Add a ¼" nut. Put the PVC cap with the bowl attached on top of the pendulum and the other two caps on the posts. Fill the bowl and Boomer Ball® (optional) with food, and let the fun begin!

In loving memory of two awesome Barbados Blackbelly sheep, Sarah and April.
Photos in the article by Melissa Looney

(Ideas appearing in this column have not necessarily been tested by the editors for safety considertions. Always think ahead and use good judgement when trying new ideas. You are invited to submit material for the Enrichment Options column. Look in the January 2004 issue of AKF for guidelines for articles acceptable for this column's format or contact the editor at akfeditor@zk.kscoxmail.com for a copy of the guidelines. Drawings and photos of enrichment are encouraged and may be submitted, along with article text in MS Word ONLY, as attachments to the email address above. Photos should be sent either as jpg or tifs with a minimum dpi of 200 (300 dpi preferred). To send materials by cd or disk, send to: AKF Editor/Enrichment, 3601 SW 29th St., Suite 133, Topeka,KS 66614-2054, USA. The Editors.)

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Conditioning 0.1 Eastern Black Rhinoceros (*Diceros bicornis michaeli*) for Behavioral Restraint in Diagnosis and Treatment of Vitiligo

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Abstract
In February of 2006, Imara, a two-year-old female Eastern black rhinoceros, presented with areas of pink skin around both of her nares and in her facial creases. In order for the veterinarians to diagnose Imara, she was conditioned under behavioral restraint for biopsy of the facial skin.[4] Facial skin biopsies were also obtained from four other rhinoceroses under behavioral restraint to better assess the skin disorder.[4] From the biopsy results, the veterinarians diagnosed Imara with the skin disease vitiligo.[4] Vitiligo is a skin disorder in which areas of skin have a loss of pigment due to the destruction of pigment cells that result in white, or in Imara's case, pink skin.[3] As the vitiligo progressed, the veterinarians decided to treat Imara's depigmented skin with UV-B phototherapy.[4] Imara was conditioned under behavioral restraint for the phototherapy treatment. Keepers utilized operant conditioning to enable the veterinary staff to perform the facial skin biopsies and treatment of Imara's vitiligo.[2] This paper discusses the husbandry and conditioning techniques for diagnosis and treatment of Imara from a keeper's perspective from February 2006 to May 2008.

Introduction
Imara, a female Eastern black rhinoceros (*Diceros bicornis michaeli*) was born 8 February 2004 at the Kansas City Zoo. She was born without complications and was a healthy rhinoceros calf. Imara's dam, sire, sibling, and an unrelated male were also housed in the Rhino barn. Her dam Luyisa, a 15-year-old rhinoceros, was imported from the Addo Elephant Park in South Africa to the Kansas City Zoo in 1997. Her sire Rudisha or "Rudy," another 15-year-old rhinoceros, came to the Kansas City Zoo in 1995 from Sedgwick County Zoo in Wichita, Kansas. Imara was the second offspring of Luyisa and Rudy. Kipenzi, her sibling, was born four years earlier.

For the first two years of her life Imara was a healthy rhinoceros, having no serious or prominent medical conditions. When she was about two years of age, keepers began to notice areas of skin around her nares turning pink. Upon closer inspection, keepers also noticed pink skin in the creases of her face around her eyes and mouth (Fig. 1). Imara's behavior was normal and there were no signs of skin irritation or swelling around those areas.

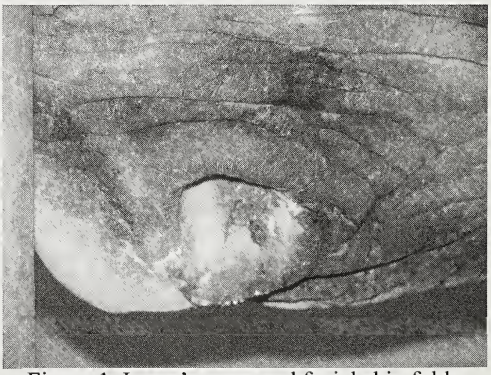


Figure 1. Imara's nares and facial skin folds.

When the veterinarians were shown the pink skin around Imara's face on 4 February 2006, they diagnosed her with focal depigmentation of the skin.[4] Since Imara was already trained to line up parallel to the bars in her stall for blood collection, the veterinarians opted to collect blood samples on Imara for further diagnosis of her skin condition.[4] Using produce as positive reinforcement, Imara was targeted to the front end of her stall, with the command "come," and then continued to be targeted along the bars until her body was lined up against the bars. With the

command "steady," the veterinarians were able to collect blood from the inside of Imara's front leg.

As the months progressed, the depigmentation began to spread on her face and progress to her appendages, such as her lip, chin, abdomen, legs, and tail (Fig. 2, 3, 4).[4] Imara's back and sides remained pigmented, showing no signs of pink skin.

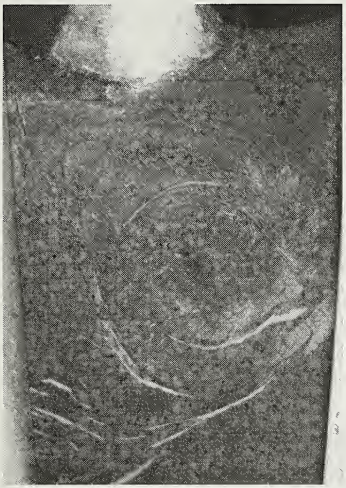


Figure 2. Imara's facial skin folds.

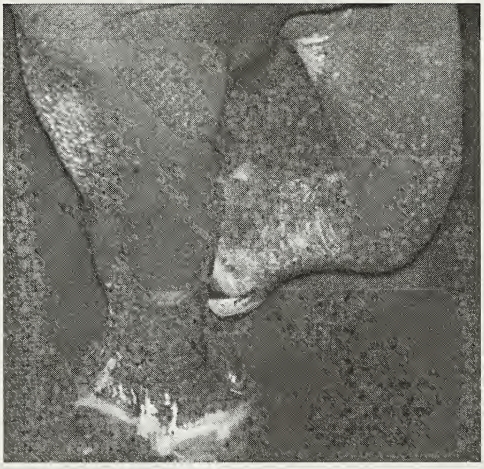


Figure 3. Imara's front legs.

Conditioning for Biopsy

In December of 2006, the veterinarians opted to collect skin biopsies on all five of the black rhinoceroses housed in the barn to further asses the focal depigmentation.[4] Conditioning for behavioral restraint began with Imara and continued with the other four rhinoceroses. Keepers were able to train 2.3 rhinoceroses to accept a skin biopsy performed on the side of the face under a local anesthetic by injection with the site being surgically scrubbed in a matter of weeks. The conditioning steps were the same for each rhinoceros, but the timelines varied based on each individual's response to the training.[2]

Figure 4. Imara's underside.

Each rhinoceros had to be conditioned to voluntarily allow the injection and to remain still for the procedure that could last up to 15 minutes, depending on the amount and quality of the samples obtained. The rhinoceroses were already trained to line up parallel to the bars of their holding stalls, allowing the keepers and veterinarians easy access to the side of their face. Keepers used their fist as a target and gave the command "come" for the rhinos to walk up to the corner of their stall. Then the keepers targeted the rhinoceroses along the bars, until they were lined up tightly against the front of the stall. They were also already trained to hold still when given the command "steady," and they were already familiar with the look and feel of a needle, as blood was drawn from their front legs regularly. However, keepers now had to desensitize the rhinoceroses to the feeling of a needle in their face. Due to the anesthesia, they were not expected to feel the actual skin biopsy, however, the keepers felt it was important to desensitize them to hard pinching on their cheek, in case of any sensation felt from the biopsy.

Keepers began with lining the rhinoceroses up against the bars and pinching their face. They were

reinforced for holding steady. All five of the rhinoceroses responded to the pinching with very little or no hesitation. Keepers felt that they could progress from the pinching straight to a blunt needle, due to the rhinoceroses' good disposition, and previous experience with needles. The blunted needle was pressed against their face at a variety of sites. After a few sessions with a blunted needle the keepers introduced a normal needle. The rhinoceroses were reinforced for holding steady during the use of these needles. The last step before the biopsy procedure was to desensitize the rhinoceroses to gauze being scrubbed on their face.

During the biopsy, each rhinoceros was given the command "steady" and reinforced for holding still with produce. Keepers cut the produce into small pieces to decrease movement of the rhinoceroses' jaws during the procedure. The rhinoceroses were also fed minimally during the biopsy because their heads had to remain still when the skin was being cut out and collected. All five of the rhinoceroses did well during their procedures (Fig. 5).

Figure 5. Biopsy collection on Rudy.
(Photo: Kirk Suedmeyer, DVM)

Husbandry Practices

In March of 2007, it became necessary to alter the daily husbandry of Imara in order to prevent skin damage from solar radiation. Keepers, veterinarians, and management were concerned with her depigmented skin burning when exposed to direct sunlight out in her yard or on exhibit. Husbandry guidelines were put into place to insure Imara's health and well-being.

Imara was allowed outside in her yard or on exhibit if the depigmented areas of skin that were exposed to the sunlight were covered with a thick layer of mud. Mud is a natural sun protectant for a rhinoceros. The only limitation to this method was that the mud had to be applied by two or more keepers at a time, which was time consuming. Otherwise, Imara had to stay inside the barn during the day most of the time. However, she was given access outside in her yard overnight, temperature permitting, from 1700-0800hrs when the solar radiation was not as strong. Keepers gave her access to her yard before they left for the day and secured her back inside the barn upon arrival the following morning. If it was a very cloudy, overcast day, Imara was allowed outside in her yard or on exhibit.

In September of 2007 a roof was constructed over Imara's yard. This allowed her to have access outside at all times without the concern of her exposed depigmented skin burning in the sun. Occasionally on cloudy, overcast days, in addition to her yard, Imara was given access to other yards without cover.

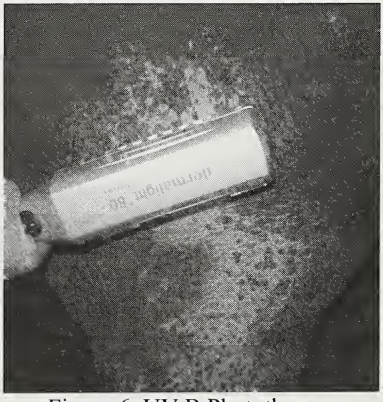


Figure 6. UV-B Phototherapy Treatment.

Treatment

The veterinarians analyzed the biopsy results and diagnosed Imara with the skin disease vitiligo. Vitiligo is a skin disorder in which areas of the skin have a loss of pigment, due to the destruction of pigment cells, that result in white or pink skin.[3] The veterinarians decided to pursue treatment of Imara's depigmented skin because of the increasing concern of her skin burning in the sun.[4] The limitation of time Imara was allowed outside and on exhibit was a concern to keepers, veterinarians, and management who felt

that her quality of life as a rhinoceros was compromised due to her skin disorder. UV-B phototherapy was chosen by the veterinarians for treatment.[4] UV-B phototherapy consisted of placing a wand (the size of a large hairbrush) that would emit UV-B light over the depigmented skin (Fig. 6). The phototherapy wands were used on specific parts of the affected skin three times per week.[4] During the phototherapy sessions keepers and veterinary staff were required to wear UV protection on their eyes and keepers had to wear gloves and long sleeves when treating Imara's face, to avoid potential damage from the UV light. Imara's eyes were protected from the UV light with pieces of cardboard held over her eyes.

Conditioning for Phototherapy Treatment

Imara had to first be conditioned under behavioral restraint to allow the phototherapy treatment. Since she was already trained to line up parallel to the bars of her holding stall for blood collection, keepers used that as a starting point to line her up and accept a brush that looked similar to the phototherapy wand held up to her skin. A timer was introduced that beeped when the set minutes expired, to desensitize her to the sound. Keepers also had to desensitize Imara to the pieces of cardboard held up to her eyes. Produce was used to reinforce her for holding steady when the brush was held up to her skin, the cardboard was held up to her eyes, and when the timer suddenly beeped. Once the keepers felt comfortable with behaviorally restraining Imara to accept the phototherapy, the treatment began.

Imara was lined up tightly against the bars by targeting her over to the front of the stall and then targeting her along the bars until her body was turned and completely parallel to the bars, usually starting on her left side. Keepers used produce as the reinforcement, the command "come," and held a fist as a visual cue to target her to the bars. When the phototherapy began, the command "steady" was given at periodic intervals to keep her from fidgeting and shifting around, and a small but steady amount of produce was given as a reward for holding her position at the bars for the entire treatment time on that side of her body. Imara learned to recognize the sound of the beeper on the timer as a cue to turn herself around in the stall, and so that behavior was captured. With the command "turn around" and making a circle with an index finger as a visual cue, Imara would make a sharp turn against the wall and turn her body around. Keepers were then able to target her along so that the right side of her body was parallel to the bars. With the same training techniques as before for holding her position, the right side of her body was treated. When treating the areas on her face, keepers would release her hold at the bars, in which she would walk away to the back of her stall. Keepers would then ask her to "come" and target her so that her body was perpendicular to the bars. The front of her face would protrude out of the large gap in between the bars, thereby making her treated area easily accessible. During the phototherapy on her face, pieces of cardboard were placed over her eyes. The command "steady" again was given at periodic intervals with a small but constant amount of produce as a reward to keep her in place while her face was treated.

Treatment started on 3 May 2007. A time progression was used to insure that Imara's skin would not burn or blister from the UV light. The areas treated were a lateral and distal area on the left and right hips, an area on the left and right elbows, an area on the caudal wrists, and the lip and nares region of the face. There were nine areas on her body that were treated for a total time of approximately 22 minutes in which she had to remain still. Treatment time usually took up to 45 minutes, as Imara would sometimes walk away from her position, in which she would then have to be targeted and lined back up against the bars to continue treatment. The phototherapy was given the same time each treatment day, usually around 1400hrs CST. Imara was not allowed outside during treatment days after the phototherapy sessions until the roof in her yard was constructed. She was unable to go on exhibit on treatment days. The treatment lasted approximately one year and ended on 21 May 2008.

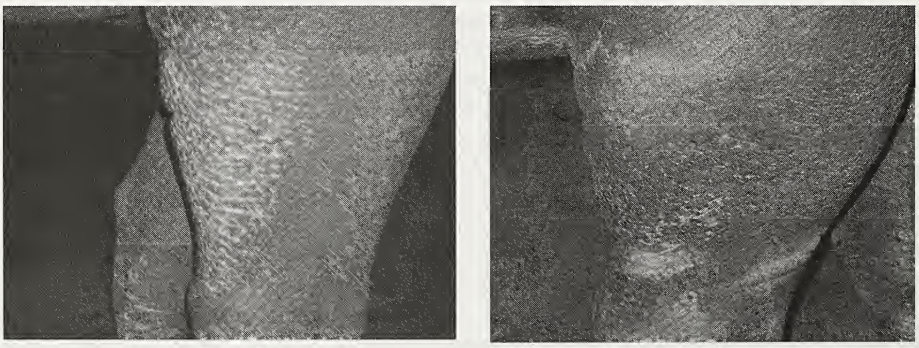
Discussion

While behavioral restraint using operant conditioning was the chosen method for the diagnosis and treatment of Imara, chemical immobilization and chute restraint were two other options.[1,2] There are

multiple risks associated with using anesthesia including: an animal injuring itself just before and after administration of the immobilization drug from agitation or stress, adverse physiological affects from the drug, which in turn would limit an emergency procedure on an animal as large as a rhinoceros, and anesthetizing an animal could compromise an unknown health condition.1 Lastly, the frequency at which the phototherapy treatments were given did not make it feasible for anesthesia. Chute restraint can be a beneficial diagnostic and treatment tool, however, it also has risks. The benefit of using a chute for medical procedures is that it keeps the animal restrained in a small space, thereby not allowing excessive movement. However, an animal can easily injure themselves when confined to a chute if they were to become agitated or startled in the enclosed space. The stress level for an animal could also be increased, which in turn can affect the quality of samples obtained during a procedure.2 Lastly, if the chute were to have been used for the procedures outlined in this paper, there would have been a delay in the process. Imara and the other rhinoceroses had not been conditioned to be locked down in a chute at the time of Imara's diagnosis and treatment. The best option for Imara and the other rhinoceroses was behavioral restraint performed under operant conditioning. This method gave the rhinoceroses the choice to participate, and thereby greatly reduced their risk of adverse health affects, injury and stress. This technique has also been used successfully in the past for a variety of husbandry and medical procedures.

Conclusion

In May of 2008, treatment for vitiligo concluded on Imara. The phototherapy treatment was successful in that the areas treated showed significant signs of repigmentation (Fig. 7). After the phototherapy treatments ended, Imara was cleared for short-term exposure to the sunlight. Keepers began giving her access outside in the sun for short periods of time, and slowly started to increase her time over a progression of several weeks. She was carefully monitored for any reaction to the sun, and keepers were to report red blotchy skin, blistering skin, or lethargy to the veterinarians. After several weeks, Imara showed no ill effects from the sun, and she was cleared to be treated as normal with access to her exhibit again, regardless of the weather conditions.



4/9/07
Pre-treatment Right Elbow

5/20/08
Post-treatment Right Elbow

Figure 7. Pre and Post-treatment comparison. *(Photo: Ginger Takle, DVM)*

Imara still has areas of depigmented skin on her body, and she will probably never again be completely pigmented. She has been treated to the point that her quality of life as a rhinoceros has been restored. However, if new depigmented areas develop that warrant phototherapy, she is well conditioned for the treatment. The black rhinoceros training program at the Kansas City Zoo allowed for blood collection, facial skin biopsies, and phototherapy treatment to be performed on a rhinoceros voluntarily under behavioral restraint. The behavioral restraint was critical for the successful diagnosis and treatment of Imara. This training can also be correlated with future medical procedures if needed, such as obtaining blood pressures, radiographs, ultrasounds, and many others.

Using behavioral restraint instead of chemical immobilization or chute restraint is a safer and more beneficial option to explore when medical procedures on an exotic animal are necessary.[2]

Thank You

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References

1. Bush, M. "Methods of Capture, Handling and Anesthesia." Wild Mammals in Captivity Principles and Techniques. Ed. Holly Harris. Chicago: The University of Chicago Press, 1996. Pp. 25-40.

2. Fouraker, M., and T. Wagener. 1996. AZA Rhinoceros Husbandry Resource Manual. Pp. 24-27.

3. Montes, L. F., J. Abulafia, W. H. Wilborn, B. M. Hyde, and C. M. Montes. 2003. Value of Histopathology in Vitiligo. Inter. Journal of Dermatology 42: 57-61.

4. Takle, G. L., W. K. Suedmeyer, and M. M. Garner. 2007. Vitiligo in a Sub-Adult Eastern Black Rhinceros (*Diceros bicornis michaeli*). Proceedings: American Association of Zoo Veterinarians, American Association of Wildlife Veterinarians, American Zoological Association-Nutritional Advisory Group. Pp. 243.

The Intimate Ape: Orangutans and the Secret Life of a Vanishing Species
By Shawn Thompson, March 2010
ISBN-13: 978-0-8065-3133-5, ISBN-10: 0-8065-3133-9
Citadel Press Books; Kensington Publishing Corp.; 119 West 40th St.; New York NY 10018
292 pgs; paperback
$15.95 US $20.00 CAN

Review by Denise Wagner
Senior Primate Keeper
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Orangutans are the only great apes that live outside of Africa. It is also the only great ape that does not live in groups and lives almost exclusively in trees. This has made them difficult to study in the wild although many people have and are currently doing so. Shawn Thompson, a journalist by trade, attempts to give us a glimpse into the secret lives of this ape, one that is vanishing almost as quickly as knowledge is gained about them. He does this in a unique way by actually focusing on people who work with wild and captive orangutans and a few individual orangutans.

At first read the book seems to be more about humans than it does orangutans, but after the first few chapters the reader will start to see where he is going with his writing. Mr. Thompson takes the reader right into the heart of Borneo and Sumatra and anywhere there are people who have a passion for orangutans. He also takes the reader right into the hearts of the people who care so deeply for orangutans as well. These include primatologists, conservationists, zookeepers, and veterinarians among others. He somehow manages to compare and contrast those who study or work with orangutans with orangutans themselves. He does this in a very tangential way through his storytelling. By comparing and contrasting and by meeting some of the orangutans that have made impressions on the people highlighted, the reader starts to get the feeling that orangutans do indeed have a secret life. Whether we've even scratched the surface of that secret life remains to be seen. But part of that life does mirror the human existence in a very real way. Humans and orangutans share many aspects in common, not the least of which are intelligence, empathy, humor, and expression. Each of these traits is poignantly portrayed by an orangutan story that is often told with wit and humor. This book is less about the latest research into orangutan behavior but more about the spirit of individual orangutans and the orangutan-human bond.

But beyond the exploration of the inner lives of the orangutan or the bond shared between two disparate yet equally alike species is the glaring reality that the orangutan is indeed a vanishing species. Through the discussions with primatologists and conservationists working with wild orangutans it is clear that there is a wide gap about how to best go about conserving this species. And if orangutans are to be saved it is evident that it needs to happen now, for the orangutans in Borneo and Sumatra are out of time.

This book is a highly enjoyable, if not emotional read, especially for those who work directly with orangutans. For those who have not worked around orangutans they will come away with a better appreciation of the red apes and why it is so important that we conserve this species. And they will enjoy the story along the way.

'Spot the Difference' - are cheetahs really just big cats? Using the Domestic Cat as a Model for the Nutritional Management of Captive Cheetahs
By Katherine Mary Whitehouse-Tedd, available May 2010
ISBN-978-1-904761-60-0
Nottingham University Press, United Kingdom
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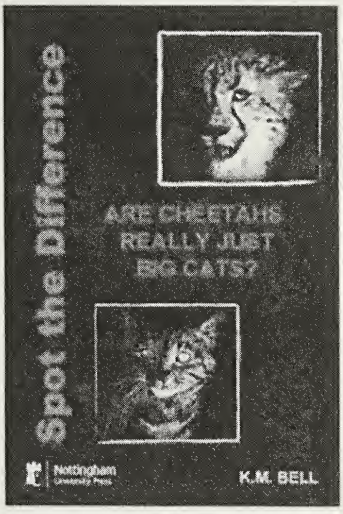

The cheetah is an endangered species, threatened with extinction due to loss of habitat and conflict with humans for land use and prey animals. Although international efforts to save the cheetah include co-ordinated multi-national breeding programes, the captive cheetah population is not yet self-sustaining. Understanding of cheetah biology has increased dramatically in recent decades but the domestic cat is still commonly used as a model species for the cheetah in captivity when it comes to nutrition and reproduction. This includes diet formulation, husbandry and breeding management. Nevertheless nutritional disorders of non-domestic cats still occur in captive facilities. This indicates that formulating a diet that is appropriate for domestic cats is frequently not sufficient for other species of cat.

Similarly, breeding techniques and management policies that work for domestic cat colonies are not necessarily suitable for other felid species. Since zoo-held felids are often unavailable for intensive research it is not always possible to accurately define the specific needs or requirements of these species.

However, is it really fair to extrapolate the nutritional requirements or reproductive anomalies of the domestic cat to its distant relative the cheetah?

This book reviews the known differences and similarities in cheetah and cat biology, with particular reference to their nutritional and reproductive physiology. Where examples from either species are missing, comparison is made with other members of the Felidae in order to estimate the likelihood of interspecific differences between the cheetah and cat. The comparisons made here have particular relevance for the formulation of diets for captive cheetahs and the development of zoo-based breeding programs. Furthermore, this book provides zoo managers, breeding coordinators, veterinarians and nutritionists with a valuable tool when attempting to identify and correct nutritional inadequacies or reproductive dysfunction in the cheetah.

This book establishes areas in which the domestic cat is a suitable model for the cheetah as well as areas in which findings in cats should not be extrapolated to cheetahs. It also highlights areas in which the cheetah is unique or different to other large/exotic felids and therefore will require species-specific husbandry or management protocols.

The book will be a valuable resource for zoo veterinarians, nutritionists, managers and keepers alike as well as being of interest to companion animal nutritionists and reproductive physiologists.

The AAZK Behavioral Husbandry Committee Presents

Training Tales...

Training Bears for Voluntary Blood Collection

By
Jay Pratte, Lead Keeper, Zoo Atlanta
AAZK Behavioral Husbandry Committee Member
Bear Care Group Board of Directors

Introduction

"...I approach every bear with the same two questions on my mind: Who are you? and What can I do for you?" – Else Poulsen, "Smiling Bears"

Bear caregivers know that these animals are clever, complex and sociable. This combination of traits signifies a very real need for dynamic enrichment and operant conditioning (training) programs for captive bears. Over the last few decades, advances in captive animal management and increased longevity have shaped a need for proactive, long-term husbandry guidelines. Incorporating regular training into the routine of bears (or any animal for that matter) improves caregivers' relationships with their charges, reduces the need for anesthetics, providing less invasive options for observation and treatment of potential medical and behavioral issues.

Several years of presenting training workshops for animal caregivers, and more recently bear-specific workshops, have provided me with a clear and concise view of what tools are most frequently requested to manage shrewd, yet dangerous species like bears. General husbandry techniques, such as shifting and cooperative feeding usually come first, but inevitably questions are raised on how to train for procedures such as voluntary injections or blood collection. A complex and marginally invasive voluntary medical technique, blood collection is a challenging yet valuable management tool. Obviously venipuncture is not the first step in a training program, but an attainable goal once a basic understanding of reinforcement and training expectations is established with each individual animal.

Why train bears for voluntary blood collection? A few excellent reasons are:

- Improved care/husbandry; more flexibility in management
- Routine or situational diagnostics
- Medical care (e.g.: vein access could provide opportunity for IV injections, administering fluids in a compromised animal w/ out anesthesia)
- Build trust between the animal and caregiver
- Voluntary cooperation and decreased immobilizations

Ultimately voluntary venipuncture provides caregivers with one more management tool, while reinforcing each animal's desire to cooperate with a consistent valued reward system. It is easy to teach the association that a little pain = big gain.

Know Your Bears

Having worked with all eight extant bear species, I have observed amazing differences between each

group. Some basic generalizations (from personal observation and discussions with other caregivers) can be made about the differing species. For example, polar bears (*Ursus maritimus*) and grizzly bears (*Ursus arctos horriblis*) appear extremely focused and intense when engaged in training. They spend most of their time on the ground, and while they are able to manipulate items with their paws, they are generally less adroit than most of their smaller, more arboreal cousins. These are clearly very common sense remarks, but the natural history of each species plays heavily into a successful training program. Trying to train a polar bear, with its enormous paws that are less finely tuned for climbing or grasping, to place a limb through a sleeve for blood draw training is very likely going to prove both frustrating and fruitless. Assessing each animal's natural history and personal preferences will allow a trainer to better judge various aspects of training, from choosing motivating rewards to appropriate positions for procedures.

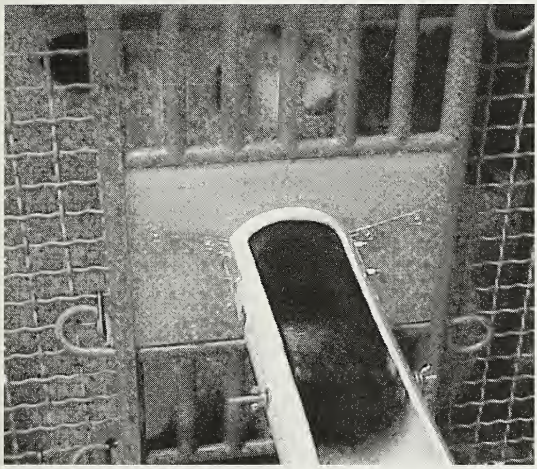

Fig. 1: A giant panda trained to use a blood sleeve at Zoo Atlanta. *(Photo by author)*

Natural and personal histories taken into consideration, the animal's physical capabilities must be assessed in conjunction with the existing environment. Are there geriatric considerations? Is the goal to draw from the forelimb, the neck, or a hind foot? This is where looking around the environment with an open, creative mind comes into play. Can maintenance crews cut training panels or holes that will not compromise human or animal safety? Can a blood draw sleeve be constructed from readily available materials (Figure 1)? Is there a low spot in a transfer area that a paw could slide under, or bars where a bear lying on its side could flop a hind foot through? Existing squeeze/crate/chute facilities are extremely useful. Can it be used in a non-restraining manner to aid positioning? There is no one correct way to train a desired behavior, and any number of options (Cecil, Kezer, Pratte, 2003). Flexibility in training is essential, as one specific method will not prove successful for every bear.

Personal observation and research to date lend support to three successful venipuncture sites: the cephalic vein on the underside of the forelimb; the dorsal pedal (metatarsal) vein on the hind foot; the jugular vein on the neck (Figure 2). These methods are not exclusive, as there are as many means of training as there are bears, trainers, and willing veterinarians or vet techs. Based on the usable space in the environment and each bear's natural and individual history, assess which of the three methods will work best.

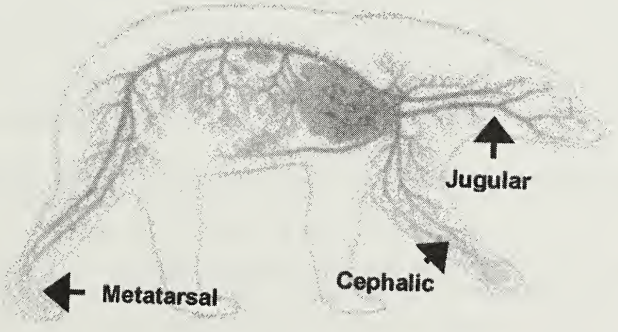

Fig. 2: Vein location for training voluntary blood collection *(From www.inberg.ca)*

The Plan

It is essential to involve managers and veterinary staff in the planning stages of training. Managers absolutely need to buy in if they are expected to provide support, time and materials. The veterinarian should describe preferences on animal positioning for maximum effectiveness and which tools they will require for the end goal. This allows the trainer to obtain the tools early in the process for desensitization training ("The act of pairing a negative or aversive event, with positive reinforcement until the event loses its aversive quality. The resulting behavior can be maintained through the use of positive reinforcement." AAZK/AZA, 2003). Veterinary staff also needs to agree to participate in training, to build their own positive and trusting relationship with the animals. If the veterinarian's presence elicits fear or anxious behavior, a voluntary draw will likely not occur.

Management and vet staff have approved the training plan. The bear's favoured rewards and individual limitations are known. The environment is conducive to shaping the appropriate behaviors. A basic training program should now be implemented if one is not already in place. This step is vital, as the easiest road to successfully teaching an animal a new, complex behavior is by incorporating existing ones into the process. Bears that already understand what to do with a target, or that reliably get rewards for shifting, will respond quickly to learning more complex behaviors.

Behavior based husbandry (Poulsen, 2009) boils down to knowing your animal well enough to learn from what they are telling you through their actions. If they settle into a specific position comfortably, move ahead with the next step in training. If they fidget, move, or do not respond to a known cue, stop and assess what might be affecting them. Responding to the needs of your bear will progress the training faster than anything else. Bears need to be recognized, rewarded, engaged and comfortable in a training setting. This is especially important when desensitizing and habituating them to new experiences. A calm, comfortable animal will comprehend that good things will occur during training.

Basic Behaviors

The most effective behaviors that aid in training for a blood draw procedure are simple to teach. If you have associated a primary reinforcer (usually favored food) with your bridge (clicker/whistle), you can bridge and reward immediately when your animal exhibits a desired behavior. The following is a list of behaviors that lay the foundation for blood draw procedure training and a brief suggestion on how to train them:

- Target
- Sit Up
- Stand Up
- Paw Presentatiion
- Lay Over (on side)
- Lay Down (sternal)
- Hold (Stay or Steady)
- Release

Target: Target training is simple and fast, and can be utilized to shape a myriad of other behaviors. Place a ball on the end of a stick, and you have a target. Present the ball to the bear, say "target" and when the bear sniffs the ball or moves to investigate it in any way, bridge and reward. Very quickly the bear will learn that when it sees the target and hears the cue, touching the target with its nose elicits a reward. The target behavior can then be used to shape various positions.

Sit Up, Stand, Down, Side: For training the "Up" behavior, move the target upwards; the bear needs to sit or stand to reach it. For "Down", move the target downwards, and reward any position changes until the bear is lying on the floor. As the bear starts exhibiting the new behavior, add in new verbal and physical cues. It is best to use cues that simulate the movement you make with the target, and add whatever verbal cue you like (Pratte, 2009). One key point to remember with bears: bears will exert as little effort as possible to maximize rewards (personal observation). Use this to your advantage in training. If you want the bear to sit, move the target and watch how they reposition themselves. If you want them to flop onto their side from a "down" position, move the target just a bit at a time.

The bear is more likely to just slide or roll onto its side, as opposed to getting up and walking over, then lying down again.

Paw Presentation: When asking a bear to sit or stand up, it will usually place paws against the mesh. When this occurs, quickly add in the new cue for "paw" (visual, verbal or both) by giving the cue as the behavior occurs. After pairing the behavior with the cue and reward, the animal should eventually understand this stimulus as a signal for "paw present". A method that I have used with big cats is a simple ruler with a different color of paint on each end to act as a paw target. One end was yellow and paired with the verbal cue "paw" for right foot; the other end was red and "foot" was used for the left cue. These cues were presented to the appropriate side of the animal when asking for each foot. Any distinct cue will work. Once the bear understands the concept of front paw presentation, they may quickly learn to do the same with rear paws. Shaping the paw presentation behavior will prepare them for blood sleeve training.

Hold: Of utmost value and importance is an intermediate "Hold" or "Stay" behavior. This cue can be used in conjunction with any other. For example, teaching a bear to "Target" and then "Hold" keeps the bear in one spot, allowing better physical inspection of the head and body. "Paw" and "Hold" teaches them to keep a paw presented for inspection, nail trims, or any other procedure, and prepares an animal nicely for using a blood sleeve (a device that aids in access to the cephalic vein on the arm). "Up" or "Down" and "Hold" teaches them to stay exactly as they are. "Hold" is simple to train: the animal executes the requested position cue, which is immediately followed with "Hold". Any longer increment of time should be rewarded well. Then to achieve a desired time frame, only reinforce longer and longer time frames in the specified position. This is known as "selective or differential reinforcement" (The act of reinforcing specific criteria of desirable responses to shape a specific behavior; the reinforcing of selected responses of higher quality to improve performance. AAZK/AZA, 2003).

Release: Often in training programs, the bridge is used as a releaser at the end of a desired behavior. Personal experience has led to great success with the implementation of an additional release cue. The trainer is essentially adding another step in using a release cue; yet, providing the animal with another chance to earn a reward. A separate cue is given to signal that they can move from the specific position that they are holding. Once they release on cue, they should be bridged and reinforced. "Okay", "All right", "Done" or any variation works. The point is to communicate to the bear "you can stop holding now". Initially, cue a behavior, ask for "Hold" and when you know the animal is reaching its current limit (likely very short at the onset), cue your release command and step back, signaling that no further cues will be forthcoming. When the bear releases the position, reward it well. This will quickly teach them that when they release on your cue there is a distinct benefit. Once the concept is grasped, reward only those times the bear released on cue. You can periodically reward for holding position, provided the bear remains in place until released. In the final stages of a blood draw, it is essential that the bear holds still until the draw is complete. Training a release cue that is well reinforced will provide appropriate known information at the end of a complex behavior chain (strings of learned behaviors executed sequentially to achieve a final goal). The benefit to using a release cue, as opposed to allowing the bridge to become a releaser, is that the bridge is used throughout various other behaviors while you are training the animal. By adding a release cue and rewarding it appropriately, the trainer lessens the chance that a bridge given during the procedure, or for maintaining a "Hold" command, will inadvertently cue the animal to release at an undesirable moment.

These few basic behaviors can now be incorporated into the chain that leads to the goal of a voluntary blood collection.

Method Mechanics for Blood Collection

Now that you and your bear have proceeded through the planning stages towards your goal, you need to choose the most practical method of blood collection for your individual animal. The three most commonly used methods of collecting blood from bears are (See Figure 2):

- The blood sleeve (used to access the cephalic vein on the foreleg)
- Hind foot presentation (to access the dorsal pedal or metatarsal vein)
- Neck/jugular presentation

Blood sleeves: Used extensively with large non-human primates, a blood sleeve allows excellent access to the cephalic vein of an animal's forelimb. The goal is to have the bear slide the front limb into a sleeve, and curl the forepaw around a pin or bolt. This grasping with the paw accomplishes two things. First the animal's paw is engaged, and when rewarded for holding this position it becomes obvious if the bear is going to move; trainers/vets have time to move out of harm's way. Second, the grasping hold causes the blood vessels to stand out, and once the limb is shaved there is easy access to a vein.

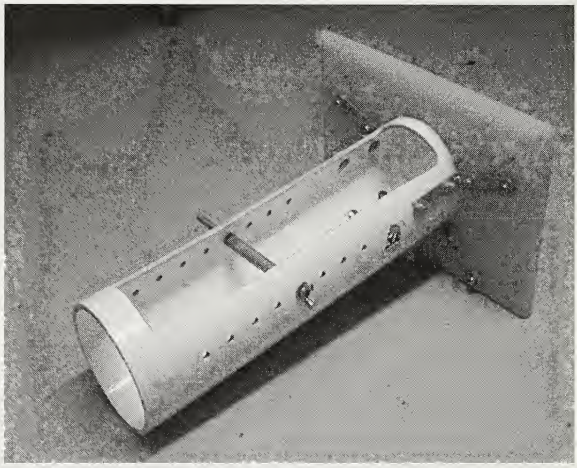

Fig. 3: Blood sleeve construction. *(Photo by author)*

A simple PVC tube of appropriate diameter for the species you are working with, a means of mounting the tube in the desired location (den, chute, training area), and some inexpensive pieces of hardware can be constructed into a safe, functional sleeve (Figure 3). The sleeve should be of simple, sturdy construction, easily cleaned and free of any sharp edges. The grasping pin should be adjustable, so that a growing bear or bears of various ages/sizes can comfortably rest the forelimb in the sleeve and hold on. The more comfortable the sleeve and position, the more willing the bear will be to remain in the position. The sleeve should be removable so that the animals are unable to interact with (and possibly destroy) it when unsupervised, and so it is easily cleaned, adjusted or repaired. Work with veterinarians to align an opening over the desired venipuncture site and allow extra space to shave, apply pressure and search for usable blood vessels.

A sleeve is useful with smaller bears that are mobile, often semi-arboreal, and possess a wide range of carpal movement/rotation. Examples are sun bears (*Helarctos malayanus*), spectacled bears (*Tremarctos ornatus*), possibly American black bears (*Ursus americanus*), and most definitely giant pandas (*Ailuropoda melanoleuca*). The basic method results in the bear sitting down, resting their weight comfortably on the floor, placing their forelimb into the sleeve that is mounted at an appropriate height. Access to the bear's mouth is essential for periodic reinforcement of holding the desired position and for rewarding shaping/desensitization steps. This is a straightforward training progression: target, sitting up, paw, hold. When these behaviors are reliably given when cued, introduce the blood sleeve. Once the initial curious investigation of the sleeve wanes (be prepared and watch for the correct limb going in and heavily reward or "jackpot" to capture this behavior), the known "paw" cue should begin to solicit a paw into the sleeve. Shape this into grasping the pin from underneath, exposing the underside of the forelimb in the cut out section of the sleeve. The necessary desensitization can be trained once this new position is reliably taught and held. Adding a new cue such as "sleeve" or "paw out" is helpful.

Hind foot presentation: A less mechanically challenging method is to plan on drawing from the dorsal pedal (metatarsal) vein on the top of a hind foot (see Figure 2, Figure 4). Train the behavior in any area where one trainer can be in front of the bear, with a second person along side of the animal. A corner chute/hall or corner of a den or enclosure works well. Two positions can be used for this: either lying on the bear's side with a foot sticking out or sitting up, holding onto the mesh (Figure 4).

Fig. 4: With access to the hind foot, blood can be collected from the dorsal pedal vein.
(Photo: Becky Wanner, St. Louis Zoo)

The lying down method works well for older individuals that may be uncomfortable sitting up, and for more grounded species like polar bears, grizzlies and Asiatic blacks (*Ursus thibetanus*). The final behavior for the side position has the animal lying on its side, allowing a hind foot to fall through bars or panels/holes cut into the side of the enclosure. Depending on the set up, a support may be needed for the foot to rest on for comfort of the bear. (e.g.: a small platform, or something as simple as an overturned five-gallon bucket works), and while the trainer directs the bear from the head, the foot can be safely manipulated on the platform. This method can be quickly trained by teaching an animal: target, down, roll over/side, hold. Gentle touch with a rod/pole to the hind foot (associate with a cue, to provide the bear information regarding what is about to happen) desensitizes to touch, and eventually will allow the foot to be drawn out onto the platform. Even better, teach the bear to touch a second target with the hind foot and put it out on cue. It is easiest and recommended to have two trainers for this: one to issue cues and rewards at the bear's head, another to work with the foot.

An alternate form of this method that works for smaller bears that will sit upright is to have them sit on a platform facing the mesh/bars (Figure 5). If shaped correctly through targeting into an upright position, the hind feet will pop forward through the bars, or panels/holes cut in for training. If the bear is comfortable (particularly being able to rest forepaws or grab onto something) and rewarded for maintaining this position, desensitization to touching the feet can occur. Provided the forelimbs cannot reach the trainer or vet, this can be a safe method and taught by one person.

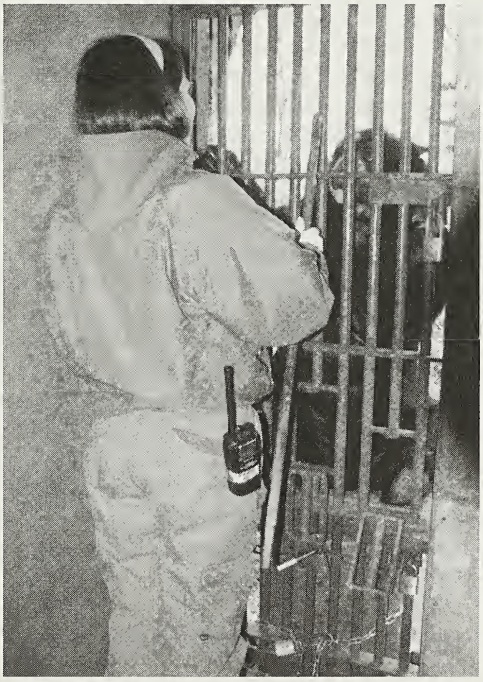

Fig. 5: The sit up position can be used for a dorsal pedal or jugular blood draw.
(Photo: David Morales, Queens Zoo)

Neck presentation: Working with the neck and jugular vein can be risky, but fast and rewarding with skilled veterinary staff. Positioning is simple: the goal is to have the bear present the underside of its neck. This method works well with chain link or mesh sided enclosures, where holes can be cut in that would permit access to the animal, but do not permit the bear to reach out and possibly injure someone. For safety, these holes

can be covered with doors when not being used. The behavior can be accomplished once a few simple behaviors are taught: target, sit up, and hold. Once they are in an appropriate comfortable position, using a rod/pole gently touch the chest and add a cue for "neck". Shape the bear into leaning forward into the chest target while extending the muzzle straight up or to the side by holding the pole slightly in front of the chest. If the animal moves toward the target, reinforce this behavior and approximate the chest to the desired location. If there is an appropriate opening at neck height, when the bear's muzzle is safely pointed away, desensitization to touch can occur.

I would highly recommend assessing whether or not it would be feasible to train for foreleg or hind leg draws first. With the sensitivity of the jugular region and the potential for blood flow after a draw from the jugular, it is crucial that the trainer or the veterinarian are able to apply pressure to the site post-draw to close off blood flow. This extra time in the desired position needs to be factored into the training goals.

Be aware that with any of these positions the trainer (or designated assistant) should always be focused on keeping the animal's attention. This is particularly important when another person is accessing any part of the animal's body. One easy method is to periodically ask the bear to "Target" or perhaps present a paw while it is holding the position, and provide small rewards for complying. The bear will quickly learn that these small rewards will continue until you cue the release. This method also greatly increases the amount of time an animal is willing to remain static in one place.

Desensitization to the procedure: Once you have trained for a specific position and the bear reliably holds until released, desensitization to the venipuncture procedure can begin. Desensitization to new experiences is the key component at this point in the training, and requires a significant level of trust on both the trainer and the animal's behalf. The people who will be involved in the blood draw itself need to be present regularly for training sessions. The bear needs to associate everyone involved with reinforcement, especially if the animal displays any learned averse responses to veterinarians or equipment. The first thing to focus on is desensitization to having a person touch the intended collection site, adding in a cue to signal what is about to happen. Reward for not reacting or pulling away, until you can touch with no adverse response. Slowly increase pressure and duration until you are eventually able to apply significant pressure with a thumb, or with two fingers (firm, constant pressure, not a jab or poke). It is not recommended to use any form of device or tourniquet to tie off the area for a blood draw. If the animal pulls away they will take the device with them, which could be destroyed or possibly injure the animal. The person applying pressure can achieve a similar end.

Introduce the tools you will be using to the bears in a positive way, allowing them to see and smell them through the caging. This includes clippers, syringes, vacu-tubes, vet equipment/boxes. Reward any positive non-averse interactions. When the animal is comfortable, turn on the clippers, then off, then reward for desired behaviors until clippers can be run with no reaction. This process needs to occur for each step. Do not surprise the animal with novel objects or sensations. Once desensitization to the sight of the tools and people is complete, introduce the tools while the animal is holding the necessary position, and again reward cooperation. Touch the vibrating clippers to the area, and reward accordingly until you can shave the area for the blood draw. Introduce rubbing alcohol (or whatever disinfectant you will be using). The bear will react to the smell and the cooling sensation. Follow the same process as the pressure and clippers until minimal responses are observed. One side note: bear species (pandas in particular) that self-anoint (rubbing of appealing scents or odors into the fur of the body) may take longer to desensitize to disinfectants if the bear decides it likes the specific smell. Be patient.

Desensitization to the needle should start out with a pinch, or pressure with a fingernail. Reward desired responses, and move to a straightened paper clip or blunted needle attached to a syringe; be sure not to break the skin. When the bear holds position through the desensitization procedures, plan to perform the first stick with the gauge of needle you are eventually going to use for the

draws; quickly in, then out. Reward heavily for any level of cooperation. The gauge required by the veterinarian for the venipuncture procedure will likely vary based on their personal preference, but should remain within the 21-23-gauge range. If the needle is too small, cells can be damaged; too large and the site will need to have pressure applied for a longer time after the venipuncture to halt bleeding (personal interview: Zoo Atlanta veterinary staff). This will increase the length of time required for the bear to remain in one position, increasing the chance of premature or non-cued release. As sessions progress under veterinary supervision, reward for allowing the needle to remain in for longer periods before release. The blood draw can be done using a straight needle and syringe or a butterfly cannula, based on veterinary preference.

The final chain of behaviors will look something like: position (sleeve, side, and neck), hold, touch, clippers, disinfectant, pressure, needle stick, draw, clean, release. As long as the bear is holding position throughout, praise them with "good hold/stay" and rewards, and always provide a big, valued reward upon release at the end of a successful session. Always monitor the area after any type of needle use for irritation, infection, or hematoma. If something occurs, the blood draw training will allow you to easily treat any afflictions.

Conclusion

There are a few main points to take away from this paper. Communication between everyone involved, including the animals, is essential. Everyone should know what to expect, and have a clear idea of what is coming next in any training or blood draw session. Record progress, and do not be afraid to take a few steps back if things go awry. Records allow you to document the steps taken, which could help future trainers or with other animals. They also allow you to demonstrate to managers, coworkers, veterinarians and peers the value of behavior based training and management. The ideas presented here have proven successful, but are not exhaustive. Use these ideas and the feedback provided by your coworkers and the animals to shape your own successful program. Most importantly, keep the experience positive for yourself and the bear. Know who the bear is and what they need, and what you can do for them. If they want to cooperate, and working with you is engaging and rewarding, there is nothing you cannot accomplish together.

Acknowledgements

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References

AAZK Animal Training Committee; AZA Behavioral Advisory Group. [2003]. AAZK/AZA Animal Training Terms & Definitions. *On The American Association of Zoo Keepers, Inc. website: www.aazk.org.*

Bear Anatomy Picture. www.inberg.ca on April 21, 2010

Cecil Binney, A.; Kezer, K.; Pratte, P. [2003]. Options for Training Side Presentation for Large Canids and Felids. *Animal Keepers' Forum. Vol.30, No.9* (Sep). pp. 390-391. American Association of Zoo Keepers, Inc., Topeka, KS.

Pratte J. [2005] Tools of the Trade: Adapting the Training Environment. *Animal Keeper's Forum. Vol. 32, No. 10*, pp 468-470. American Association of Zoo Keepers, Inc., Topeka, KS.

Pratte J. [2009]. "I Said Exit Stage LEFT You Idiot" or "Is your cue really telling your subject what you think it is?" *Animal Keepers' Forum. Vol.36, No.9* (Sep). American Association of Zoo Keepers, Inc., Topeka, KS.

Poulsen E, [2009]. *Smiling Bears: A Zookeeper Explores Behavior and Emotional Life of Bears.* Greystone Books, D&M Publishers, Inc. Vancouver, BC, Canada.pp. 139-140.

Conservation/Legislative Update

Column Coordinators: Becky Richendollar, North Carolina Zoo and Greg McKinney, Philadelphia PA

This month's column was put together by column co-coordinator Becky Richendollar

Brown Pelican One Victim of Gulf Coast Spill - The brown pelican *(Pelecanus occidentalis)* was removed from the Endangered Species List in late 2009. Now, just a few months later, their numbers are once again in danger. The birds are currently nesting on an island off the coast of Louisiana, just 10 miles from the area where three million gallons of oil threaten the rich biodiversity of the area. The pelicans, which leave the island to dive for herring and mullet, are in danger of eating fish that have now been steeped in oil for days. In addition, diving birds can get oil on their feathers, causing them to lose insulation and buoyancy. One oiled pelican has already found its way to the bird rehabilitation center in Louisiana, but officials expect to see many more. The brown pelican, whose population was once decimated in the area, is considered one of Louisiana's biggest conservation success stories. Unfortunately, the oil spill may see the brown pelican numbers once again plummet. *Source: cbsnews.com, May 7, 2010*

Brown Pelican
(Photo: stockxchange.com)

Damage from Gulf Coast Oil Spill Continues - The extent of the damage from the BP pipeline in the Gulf Coast remains unknown. The explosion of the Deepwater Horizon rig took place on 20 April 2010, killing eleven people. Since the explosion, the well has been pumping approximately 210,000 gallons of oil into the sea daily. The first attempt to stop the leak, a dome that took over two weeks to build and nearly 12 hours to lower to the ocean floor, has failed. A spokesperson for BP said it could take a few days before another solution is attempted.

In the meantime, volunteers are gathering hair from hair salons all over the southeast to create "hair mats" which can be used to sop up oil from the ocean's surface.

On 8 May, 18 days after the initial explosion, tar balls began showing up on the beaches of Dauphin Island, three miles off the coast of Alabama. Rainbow-like sheens of oil had also begun to make an appearance in the delicate marshlands along the coast of Louisiana. On 7 May, the US Fish and Wildlife Service closed Louisiana's Breton National Wildlife Refuge to the public. Oil had already been seen on all sides of the island and the closure was to allow for more efficient clean-up efforts and to protect the birds that are nesting on the island.

As the oil continues to empty into the fragile ocean ecosystem, residents of gulf coast states wait for injured wildlife and slicks of oil to wash up on the shores of their homes. *Source: Associated Press, Discovery News May 9, 2010*

US Fish and Wildlife to Review Wolverine Status - In 2008 the US Fish and Wildlife Service determined that the wolverine (*Gulo gulo*) population in the United States did not warrant protection under the Endangered Species Act. This conclusion was reached, in part, by the use of the Distinct Population Settlement policy. The Service claimed that the wolverines in the contingent United States were not a distinct population because they were not separated from the Canadian wolverines. They went on to say that the wolverine population in the continental US was not a distinct subspecies and therefore not eligible to be listed.

In 2009 Defenders of Wildlife filed a suit against the Fish and Wildlife Service for inappropriate use of the Endangered Species Act. The two parties settled out of court, with Fish and Wildlife agreeing to re-examine their original findings. A final document reviewing all of the information about the wolverines is due at the end of 2010. Until then, Fish and Wildlife is accepting information from scientists and citizens about the wolverine population. *Source: US Fish and Wildlife News, April 16, 2010*

Government Agencies Join Together for Migratory Birds - In April, the US Fish and Wildlife Service signed Memoranda of Understanding (MOUs) with the Bureau of Land Management and the National Park Service. These MOUs will enable these three organizations to work together to identify strategies and efforts to help migratory birds.

"This agreement will help us conduct landscape-level planning and develop additional conservation measures to benefit migratory bird species across public and private lands," said US Fish and Wildlife Service Acting Director Rowan Gould. "The conservation of birds will help sustain ecological integrity and ecosystem services, including insect control, pollination, and seed dispersal. Migratory bird conservation also meets the growing public demand, and need, for outdoor education and recreation."

Possible results of this collaboration include implementing studies on migratory bird species and how they can be affected by federal agencies; developing conservation plans and best management practices, and developing ongoing support for educational programs such as International Migratory Bird Day.

The Bureau of Land Management owns and manages more land than any other federal agency. The National Park Service is charged with managing National Parks for the enjoyment of all citizens. And the US Fish and Wildlife Service conserve, protect, and enhance plants, animals, fish, and wildlife habitats. These three agencies working together will form a powerful entity that can work for the benefit of migratory birds. *Source: US Fish and Wildlife News, April 12, 2010*

Toronto Zoo Goes Green with Poo - The Toronto Zoo has put out a Request for Proposals to build a large facility that will turn elephant, giraffe, and other poop in to biogas. The biogas will then be burned, generating electricity to heat and power several of the zoo's exhibits. Some estimate that this move will save the zoo $1 million in natural gas annually.

"We do produce a considerable amount of waste, but I prefer to call it fuel," said Dave Ireland, who heads up conservation programs for the zoo.

The company that builds the facility will also own and operate it, selling low-cost heat back to the zoo. The facility will be built on zoo land and will produce between 2.5 and 5 megawatts of electricity, an amount that could power and heat at least 2,000 homes.

All of the zoo's compostable materials will be used in the plant, a sum of 1,000 tons of waste annually. The rest of the material needed to run the plant will come from organic material in nearby communities.

The biogas facility will emit greenhouse gases, but these gases would have reached the atmosphere anyway through the process of natural decay.

By burning the methane and not using fossil fuels, the zoo expects to reduce their overall CO_2 emissions by 25,000 tons annually. *Source: The Toronto Star, May 3, 2010*

Snails Help Cross River Gorillas

The Wildlife Conservation Society has begun a new program to help curtail poaching of Cross River

Cross River Gorilla
(Photo: Julie Langford/wikimedia)

Gorillas (*Gorilla gorilla diehli*) in Nigeria. The new program promotes snail farming, which will give the community a different source of animal protein, as well as generate income for families. The WCS hopes that this will discourage poaching.

Cross River gorillas, once thought extinct, were rediscovered in the 1980s. The population of this endangered ape is less than 300, so even a small amount of poaching can greatly affect the group.

James Deutsch, Director of the WCS's Africa program said, "People living near Cross River gorillas have trouble finding alternative sources of income and food and that's why they poach. We are working with them to test many livelihood alternatives, but perhaps the most promising, not to mention novel, is snail farming."

African Giant Snails
(Photo: Wildlife Conservation Society)

The project identified eight former gorilla hunters from four different villages and gave them the resources to build snail pens. The pens were then stocked with 230 African giant snails (*Achatina fulica*).

Locals consider the snails a delicacy and with their high protein content and easy maintenance, the WCS expects snail farming to catch on. *Source: Discovery News, April 28, 2010*

Northern White Rhinos De-horned - Early this year, four northern white rhinos (*Ceratotherium simum cottoni*) were moved form a Czech zoo to a reserve in Kenya in a last attempt to save the species. In an interesting news piece released later, the four were de-horned before their release.

Two-thousand-nine brought Kenya's worst poaching year in recent history, with the loss of 12 black rhinos (*Diceros bicornis*) and six southern white rhinos (*Ceratotherium simum simum*). "With the increase of poaching in Kenya, we are simply not taking any chances," said Elodie Sampere from the Ol Pejeta Conservancy. "Without a horn, these rhinos are of no value to poachers."

Sampere went on to say that cutting off the rhino's horns would provide an opportunity for the horns to grow straight. Growing up in a zoo, according to Sampere, had caused the horns to be misshapen due to a lack of trees for the rhinos to rub on.

A small radio transmitter was put in to the base of each of the animal's remaining horn so that the animals could be tracked in the coming months. *Source: zoogle.com, February 15, 2010*

Thailand Fails To Be Delisted from Ivory 'shame file' - Thailand has failed to convince the international body on wildlife trade to delist the country from the illegal ivory trade watchlist.Thai wildlife officials proposed the delisting during the triennial general assembly of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) in Doha, Qatar.

Thailand is ranked the third worst offender on CITES's list of nations where the ivory trade has been most rampant since 2006, after Congo and Nigeria.

Adisorn Noochdamrong, of Thailand's CITES office, said Thai authorities had successfully confiscated large amounts of smuggled ivory, but this had not helped improve the country's status on the watchlist because the listing was based on how many ivory confiscations there are, not the seized amount.

Mr. Adisorn, a member of the negotiating team, said his team had proposed a revision of the ranking system, but failed to get support as the adjustment could affect other countries negatively. Failure to remove Thailand from the watchlist, however, would not hamper authorities' attempts to crack down on the illegal ivory trade.

"To prove that we are serious about cracking down on the illegal ivory trade in order to be delisted from the watchlist, we will focus more on legal enforcement and confiscation of the illegal items," he said. "This means wildlife officials need the closer cooperation of related agencies, especially the Department of Customs."

Mr. Adisorn said customs officials tended to be lenient with the charges pressed against ivory smugglers, such as tax evasion. Under such a charge, wrongdoers would only have to pay a fine of four times the ivory's price. He urged customs officials to allow wildlife officials to take part in the cases so that in-depth investigations could be carried out to track down illegal ivory trade rings. Natural Resources and Environment Minister Suwit Khunkitti has said being on the watchlist had gravely damaged Thailand's reputation. The minister has pledged to free the country of the illegal trade.

Thailand is known as one of the largest hubs for crafting ivory with Japan and China as its major markets. In March, customs officials seized 239 pieces of elephant tusk weighing two tons, valued at 120 million baht, at Suvarnabhumi airport.It was the country's largest seizure of ivory in terms of weight and value.Thai wildlife and customs officials have been told to keep a close watch on the smuggling of ivory into the country after CITES rejected Tanzania and Zambia's proposal to export over 100 tonnes of ivory from their government stockpiles. Authorities are worried this ivory will be traded on the black market instead. *Source: Bangkok Post.com 3/30/10*

Revolutionary Zoo Professional Devra Kleiman Dies - Conservation biologist Devra Kleiman has died at the age of 67 in Washington, DC. Kleiman had been working with the National Zoo for over four decades and is credited with many success stories within the zoo community.


Dr. Devra Kleiman
(Photo: University of Maryland website)

Kleiman is considered to be the cause behind the restoration of Golden Lion Tamarins (*Leontopithecus rosalia*) to the wild in Brazil. In the 1970s Dr. Kleiman approached the zoos owning Golden Lion Tamarins with a radical proposition. She asked the zoos to give up ownership of the small primates, and instead make them the property of the Brazilian government. Her dream was to see the offspring of the captive GLTs return to their native country.

After many years of negotiation, zoos agreed and Golden Lion Tamarins began moving back and forth between zoos to optimize breeding success. Dr. Kleiman began using a computer to track all of the Golden Lion Tamarins to maximize the chances of genetic diversity.

Dr. Kleiman's original computer tracking system became the basis for over 100 breeding programs that exist in zoos today. Dr. Kleiman's work will long impact animal species around the world. Indeed, she is credited with saving the Golden Lion Tamarin. When she began her work, there were fewer than 200 of the small primates alive anywhere in the world. Today, according to National Zoo officials, approximately 1,500 live in the wilds of Brazil. *Source: New York Times, May 8, 2010*

New Animal Species Discovered in Borneo - Wildlife researchers said on Thursday they have discovered around 120 new species on Borneo island, including a lungless frog, the world's longest insect and a slug that fires "love darts" at its mate. Conservation group World Wildlife Fund listed the new finds in a report on a remote area of dense, tropical rainforest that borders Malaysia, Indonesia and Brunei on Borneo. In 2007 the three governments designated the 220,000-square-kilometre (88,000-square-mile) area as the "Heart of Borneo" in a bid to conserve the rainforest.

"We have been finding on average three new species a month and about 123 over the last three years, with at least 600 new species found in the last 15 years," Adam Tomasek, head of WWF's Heart of Borneo initiative told AFP from Brunei. "The new discoveries just show the wealth of biodiversity on Borneo island and the promise of many more future discoveries that could eventually help cure illnesses like cancer and AIDS and contribute to our daily lives," he said.

The "Heart of Borneo" region is home to 10 species of primate, more than 350 birds, 150 reptiles and amphibians and about 10,000 plants that are not found anywhere else in the world, the report said. Among the finds are a seven-centimetre (three-inch) flat-headed frog, known as "*Barbourula kalimantanensis*", discovered in 2008, which breathes entirely through its skin instead of lungs. Researchers in the same year also discovered "*Phobaeticus chani*", the world's longest stick insect, with a body 36 centimetres long. Only three specimens of the creature have ever been found. Another interesting find was a long-tailed slug that uses "love darts" made of calcium carbonate to pierce and inject a hormone into a mate to increase the chances of reproduction.

The rare Sumatran rhino in the photo taken February 25 appears to be a pregnant female less than 20 years old. *(Photo: WWF/Malaysia)*

The WWF urged governments act sensitively when developing the area's economic potential. "We know that it is impossible for the three governments not to have development in mining, oil palm plantations and logging in the area," Tomasek said. "What we want to have is a balance so that we have a foundation of conservation and sustainable development in order to protect this unique site for future generations," he added.

Indonesia and Malaysia, the world's two largest exporters of palm oil, account for 85% of global production. Palm oil -- used extensively across the globe for biofuel, processed food and toiletries -- has been vilified by environmental campaigners for causing deforestation and threatening the survival of near-extinct species.

Tomasek said the "Heart of Borneo" initiative is also important for protecting the habitat of endangered species such as the pygmy elephant, orangutan, rhinoceros and clouded leopard. "In many ways this is the last stronghold for the long-term survival of these species," he said. The Sumatran rhinoceros is one of the world's most endangered species, with only about 200 remaining in the wild, up to 180 in Indonesia and the rest in Malaysia.The Bornean sub-species is the rarest of all rhinos, with just 30 left in the wild on Borneo island. Conservationists also warned the world has less than 20 years left to save about 50,000 to 60,000 of the charismatic red-haired orangutans left in the wild.

Read more: http://www.timescolonist.com/technology/animal+species+discovered+Borneo/2938557/story.html#ixzz0mDz8DiRl *Source: Canada.com/Times Colonist 4.22.10*

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